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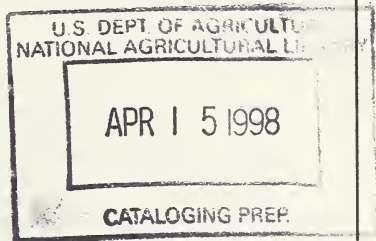
## SPECIAL STUDY ON SUGAR

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A REPORT OF THE  
SPECIAL STUDY GROUP ON SUGAR  
OF THE  
U.S. DEPARTMENT OF AGRICULTURE



FEBRUARY 14, 1961



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# SPECIAL STUDY ON SUGAR

## SUMMARY

This is the report of the Special Study Group on Sugar established in the Department of Agriculture at the request of the House Committee on Agriculture. The guidelines for the study were laid out by the committee in a letter dated September 10, 1960, from the committee chairman to the Secretary of Agriculture, excerpts of which follow:

As you are aware, when the 87th Congress convenes, this committee will be faced with the responsibility of writing a new sugar law, or at least major amendments to the law now on the books.

It seems evident that we will not only have to write a new Sugar Act but develop and put into legislative form a new sugar policy for the United States. The Sugar Act of 1948 and its predecessors, beginning with the Jones-Costigan Act, were predicated on the assumption that Cuba was a reliable and ever-available residual supplier to which we could look for our sugar supplies in the event of a deficit in any other supplying area. It appears now that our future sugar policy can no longer be based on this assumption.

If Cuba is not to be a dependable source for approximately one-third of our domestic sugar requirements, in what direction shall we look for these sugar supplies? Are we to place greater reliance on mainland sugar production and, if so, what are the economics of such a policy? What effect would such a policy have on producers, on agriculture generally, on consumers, or refiners, and on the taxpayers? If we are to look to offshore areas for substantially larger sugar supplies, what would be the effect of such a policy?

It is the unanimous sense of the House Committee on Agriculture that the Department of Agriculture be requested to conduct a study of sugar and its relationships to our national economy in its broadest sense, and make a report to the committee on the various alternatives which might be pursued and the probable results and effects of the various alternatives. We should like to have the study in the hands of the committee by approximately January 20, 1961.

\* \* \* \* \*

In closing I would like to again emphasize the fact that we want a thorough, complete, and comprehensive study of all the numerous problems involved.

The study group has directed its analysis toward the longer run problems associated with the various alternatives open to the United States rather than the immediate means of replacing sugar formerly obtained from Cuba. This latter situation presumably will be dealt with by interim legislation.

Certain considerations flow from the materials contained in the subsequent sections of the report.

1. Looking ahead over the next decade, the United States need not fear that the break in the traditional flow of Cuban sugar to the United States (even if it should persist) will bring a shortage of sugar available to it.

Cuba has been a major supplier of sugar to the United States from the beginning of our modern sugar economy. In recent years, prior to mid-1960, our imports of sugar from Cuba amounted to over 3 million tons annually, about one-third of total consumption in the United States and some two-thirds of all sugar imported from foreign areas. The Cuban sugar trade with the United States has now been



redirected toward the Communist bloc. However, it is not clear that the Cuban sugar, which formerly came to the United States and is scheduled for the Communist bloc, will remain outside the free world. Sugar production in the U.S.S.R. has increased very substantially in recent years and there is some question as to whether the bloc will absorb 10 times as much sugar from Cuba as it previously imported. Already there are trade reports that some of the Cuban sugar shipped to the U.S.S.R. has reappeared in markets outside of the bloc.

*Foreign supply potential*

But we have directed our analysis of alternative foreign suppliers under the assumption that the Cuban supplies formerly obtained by the United States—about half of Cuba's production—are not available, whether through absorption in the Communist bloc or through failure of the Cuban industry to maintain production. Even so, the free world sugar supply is abundant. In recent years, production has increased faster than consumption and stocks have risen sharply in areas outside of Cuba. Further, in looking toward the future, we need to keep in mind that many countries have imposed production restrictions because of the heavy supply situation and that the U.S. quota system has limited imports much below the quantities foreign countries would have been willing to supply at the prices we have established for foreign sugar, which are generally above the prices paid by other importers.

Thus, considering the productive potential of foreign suppliers other than Cuba, the projection of our Foreign Agricultural Service is that, at present U.S. prices to foreign suppliers, almost 9 million tons would be available to the United States by 1970 even if foreign suppliers who do not have U.S. quotas continued to give priority to the needs of their traditional markets. This total compares with our total imports of 4.5 million tons in 1959. Further, the potential availability of foreign sugar by 1965 would be some 2 million tons more than was imported in 1959. About three-fourths of the foreign sugar that is likely to become available would be in those countries which presently hold U.S. quotas and in Central and South American countries which do not have U.S. quotas. Shipping charges to the United States are relatively unimportant in determining where foreign supplies might be obtained, ranging from one-fourth cent per pound from most of the Caribbean and South American countries to about one-half cent from the Pacific areas.

Even at prices for raw sugar some 25 percent lower than at present—but still above prices generally prevailing in some markets—the availability of foreign sugar in 1965 might well be at least as much as 4.5 million tons (about the level imported in 1959) and over 6 million tons by 1970.

Conversely, if prices of raw sugar were raised by 25 percent, or roughly  $1\frac{1}{2}$  cents per pound, the supplies available to the United States from foreign sources only could well meet our total sugar requirements of some 11 million tons or so by 1970 and most of our total requirements by 1965.

As to the foreign supply situation immediately and through the next several years, it may be noted that: World sugar stocks are currently high; production during this crop year is expected to be at record levels; and there are pressures for continued expansion of production in most areas of the world.

Only a combination of unusual events occurring in rapid succession would be likely to raise world sugar prices to the domestic level for any extended period. Such a situation did occur in late 1956 and 1957, when a short European sugar beet crop was accompanied by the Suez and Hungarian crises, followed and aggravated by a short Caribbean sugarcane crop.

### *Domestic supply potential*

The domestic sugar industry also has a substantial capacity to expand at present prices for sugar crops and present price relationships with competing crops. In 1960, domestic sugar production (offshore as well as continental United States) was about 5 million tons, roughly 55 percent of our total consumption. In 1961, with production and marketing restrictions lifted, it is estimated that domestic production may rise to 5.7 million tons, about 60 percent of prospective consumption for this year. The 1961 level of mainland sugar production will be quite close to the present capacity of processing facilities for mainland sugar crops, although that capacity might well continue to increase through improvements in present facilities and methods.

Technological advance has been rapid for domestic sugar crops. Man-hours of labor required to produce a ton of sugar have been sharply reduced in the past decade and mechanization has been rapid. Yields per acre have risen a fourth or more since the end of World War II in mainland sugar beet and sugarcane areas and in Hawaii. In Puerto Rico, yields have not shown much improvement.

Although sugar prices have remained essentially steady since 1953, prices for other crops have declined some 15 percent. Thus, the relative position of sugar crops, especially sugar beets, has become more favorable.

Projections of our domestic potential capacity to produce sugar crops by 1970 were developed by research economists of the Agricultural Research Service in the appropriate States and Puerto Rico, assisted by specialists in the land-grant colleges and experiment stations, the sugar industry, and others, and coordinated and reviewed by a study group in the U.S. Department of Agriculture. A set of assumptions was used involving most importantly that the prices assumed would prevail for a long enough period to permit long-term production planning, that sugar-crop processing facilities would not be a limiting factor, and that prices of other crops and cost rates would continue at 1959 levels.

At prices and price relationships that have prevailed in the recent past, domestic sugar growers have the capacity to produce over 8 million tons by 1970 compared with 5 million tons in 1959—the base year for these projections—and the estimated 5.7 million tons in 1961. Most of the increase in acreage would likely come in the sugar-beet areas. Sugar-beet acreage has risen steadily for some years. Also a considerable expansion would occur in mainland cane areas, particularly Florida. The acreage in offshore areas would not be expected to change much. Broadly, the potential capacity to produce domestically some 2½ million tons more sugar by 1970 compared with 1961 involves an increase of some 2 million tons from the sugar-beet areas, some 300,000 tons from mainland cane area, and 200,000 tons from offshore areas.

In order to determine how domestic producers might respond to changes in prices, similar projections for 1970 were developed for grower price situations for sugar crops 25 percent below and 25 percent above the 1959 level. Under the lower price assumption, the total amount of sugar produced domestically might well be reduced to 3 million tons, a reduction of almost half the estimated 1961 output. Of the 2.7 million-ton drop, offshore areas might account for about 1.4 million less, sugar-beet areas 1.1 million less, and mainland cane areas some 200,000 tons less.

At the other extreme, an increase in domestic producers' prices of some 25 percent would bring a tremendous expansion in domestic output to over 13 million tons by 1970, which would be beyond our total requirements for sugar. This would be some 7.5 million tons more than indicated for 1961. Of this, expansion in the sugar-beet areas might account for 5.5 million tons of the increase, and the offshore cane and the mainland cane areas about 1 million tons each. These projections do assume that processing facilities would be available to handle the expanded production and that present relationships of sugar crop prices among the several areas would continue.

2. It seems clear that from a supply viewpoint the U.S. economy could reasonably expect to fulfill its sugar requirements at significantly lower prices in the decade ahead than the prices that have prevailed in the recent past. But considerations of lower prices, especially if they involve a substantial reduction, would need to be weighed alongside other considerations, such as the goals of sugar legislation since 1934.

The goals of the Sugar Act of 1948 appear to be those which the act sets for the Secretary in establishing annual consumption requirements, namely, to protect the welfare of consumers and of those engaged in the domestic sugar industry, and to provide a supply of sugar at prices which are not excessive to consumers and will fairly and equitably maintain the sugar industry. In addition, the Sugar Act has the further purpose of promoting the export trade of the United States.

The abundant supply situation which presently exists is illustrated by the fact that raw sugar prices at New York have settled back toward the levels prevailing for some time prior to the cessation of sugar shipments from Cuba to the United States in mid-1960. Moreover, our review indicates that the potential supplies that could be made available both from domestic and from foreign sources over the decade ahead at recent prices is far in excess of the probable growth in U.S. sugar consumption. Our sugar requirements grow slowly, about in line with the growth in population. Per capita sugar consumption has been stable at the high rate of 97 pounds refined (104 pounds of raw sugar) a year for some years. According to the Bureau of the Census, if the growth in population in the United States and Puerto Rico in the decade ahead approximates that of recent years, the total population will rise from 183 million persons in mid-1960 to 199 million in mid-1965, and some 217 million in mid-1970. With per capita consumption quite stable, sugar requirements might total 10.3 million tons in 1965 and 11.3 million in 1970, compared with 9.5 million tons in 1960. The level of requirements for 1970 is some 5½ million tons less than total projected availabilities under conditions of no restrictions and present price levels. Nor



would consumption change significantly if prices were to move moderately up or down, except as it might affect the use of corn sweeteners. In the last few years, the discount of corn sweeteners below the price of sugar has widened and the consumption of corn sweeteners has reached a total of over 1 million tons sugar equivalent, increasing at the rate of 40,000 tons a year.

The set of aims or goals at the base of our present sugar legislation recognizes the interests of the various groups involved—the several interests of the domestic sugar industry—including growers, processors, refiners, and importers; the foreign sugar suppliers and the export industries in this country which depend on their trade; and the American consumer. For the most part, these interests pull in diverse directions. Thus, we have developed a thoroughly managed sugar economy.

Our quota system has been designed to provide about 55 percent of our gradually increasing market to domestic producers and 45 percent to a select group of foreign suppliers, about two-thirds to Cuba before mid-1960. The foreign supplier has benefited from substantially higher prices maintained in the American market, with a quota premium in recent years of over 2 cents a pound for raw sugar compared with the "world free market." The latter is not fully representative of world prices in view of the fact that about 60 percent of the world trade in sugar moves under special arrangements, such as the United States and the British Commonwealth systems, while the remainder—only some 6 to 7 million tons—establishes the prices in the "world free market."

*World market and U.S. sugar prices (November 1960)*

Item	Cents per pound (as is)
Raw sugar, "world market" producing country.....	3.25
Freight.....	.25
Quota premium.....	2.37
Tariff.....	.63
Duty or duty free, New York, in bulk for U.S. consumption.....	6.50
Excise tax.....	.50
Total, including excise tax, New York.....	7.00
Cost of raw sugar per pound of refined.....	7.49
Wholesale refined, New York, in 100-pound bags, delivered, net.....	9.51
Average retail price, United States, 5-pound packages.....	11.88

The domestic grower benefits from the higher prices here than in the world sugar market, resulting from the "quota premium" and the tariff. Additionally, the U.S. grower receives a direct payment averaging 0.7 cent per pound (ranging from 0.8 cent for production by small growers to 0.3 cent for the largest increment of production) which is financed by an excise tax of 0.5 cent per pound on all sugar whether domestically produced or imported. Thus, there is in total a substantial price and payment incentive to the domestic grower. Further, returns per ton of sugar beets and sugarcane have held relatively stable in the last 10 years while prices of other farm products have generally moved to lower levels. Although production in domestic areas in total has been held within the domestic quota, production in mainland beet and cane areas has risen much faster



in recent years as a result of adjustments in quotas resulting from the failure of Puerto Rico and Hawaii to meet their quotas.

Thus, in a large sense, the goals of our sugar legislation have been realized. The domestic industry has been maintained and, for mainland growers, has shown vigorous growth in recent years. Foreign countries who are quota holders have received more from sales in the United States in most years than they would have elsewhere, thus supporting our exports to them. In the case of the consumer, the system has provided a safe and adequate supply, perhaps a margin of safety beyond that actually required. Whether the price paid by consumers was higher than necessary, considering the other goals and the ample supply situation which has prevailed, is a matter of judgment. The retail price of sugar since 1947-49 has been free of sharp movements. It has risen somewhat more than retail prices of foods generally, mostly because prices to growers of sugar crops have been better maintained than prices of most other farm products. There have been times in the past during periods of international stress, such as during the Korean war and the Suez crisis, when the "world free market" price of raw sugar has risen substantially above the price in the United States and the quota premium turned negative. During these periods, foreign suppliers continued to meet their quotas in order to protect their long-term interests in our market. Additionally, the margin between domestic raw sugar prices and refined prices at retail is about 40 percent of the total retail price and as for most foods the margin has increased persistently over the years, even though less for sugar than for foods generally. Thus, we find in the recent period that while raw sugar prices have returned toward the levels of a year ago, the price of refined sugar at retail has not.

Finally, we need to keep in mind that only one-third of our sugar is consumed directly in the household and the proportion is decreasing. More than half is consumed in the form of processed food products such as bakery goods, bottled drinks, confectioneries, canned fruits and vegetables, ice cream, etc. In these, the value of the sugar is a small percentage of the total value of the product, mostly within 5 to 10 percent. There is considerable question as to how much of any reduction in the price of sugar that might be accomplished would pass on to the consumer.

3. In considering a substantial move toward increasing domestic production as against greater reliance on foreign suppliers, the increase in employment and economic activity generated by a sharp rise in domestic production would be balanced more or less by reductions in our export industries. From this overall view, there appears to be some justification for avoiding a rapid and substantial move in one direction as compared with the other.

Much of the case for expanding domestic production of sugar rests on the fact that there are unused resources in agriculture and a desire to improve farm income generally. In addition, a substantial move toward larger domestic production would mean increased investment and employment in beet sugar factories although some cane refining capacity would become surplus.

It is questionable, however, whether increasing domestic production will provide more jobs than a commensurate increase in imports from foreign countries. The purchases from the United States by foreign

suppliers of sugar have been limited by their dollar earnings augmented in some instances by economic aid. In general, these are underdeveloped economies and dollar-short countries rather than dollar-surplus. The United States is interested in helping these countries and in promoting increased trade with them. Cuba, in earlier years, supplied two-thirds of our foreign supplies and was accordingly a substantial market for U.S. products, not only industrial products but also our largest Latin American market for U.S. farm products, notably rice, lard, wheat, and wheat flour. Our export industries have been hurt by the sharply diminished trade with Cuba but the recent expansion of sugar shipments from other quota holders and from other countries such as Brazil, will likely provide opportunities for regaining export markets, providing American industry continues to be competitive.

On the other side, a rapid move toward a substantial increase in foreign takings over recent levels would mean a considerable liquidation of the domestic industry, including more idle resources on the farm and in the rest of the sugar industry, and a sharp reduction in the value of their investments. The domestic sugar industry directly provides employment for some 300,000 workers, of which about 240,000 represent the seasonal peak in employment on the farm. Investments total \$1,650 million, of which \$750 million represents the farm investment utilized for sugar crops and the remainder, investment in sugar factories and refineries.

4. The United States must decide whether it should reserve a place for the return of Cuba to participation in our sugar market. This has a direct bearing on the kinds of sugar programs that might be pursued.

Until Cuba entered the Communist orbit, its economy for more than 50 years was based substantially on producing sugar primarily for the U.S. market. At such time as normal relations may be reestablished, Cuba's greatest and most immediate need may be for a substantial market for sugar. Further, the advantages to the United States of a large, dependable source of supply nearby is illustrated particularly by our experience during World War II when the task of producing sugar for the United States and many of its allies fell largely on Cuba.

Thus, in considering the alternative approaches open to the United States in developing a sugar policy, particularly those involving the quota system, the future role of Cuba is an important factor. Quota systems build vested interests and once allocated are difficult to rescind. Also, it should be kept in mind that the benefits of the quota premium to foreign suppliers were very largely received by Cuba and were substantially for the purpose of assisting her economy.

5. Looking to the future, we must recognize that we start from a highly controlled system which has molded the sugar economy and its practices for over a quarter century. An abrupt move to a policy of complete free trade would be disruptive.

Since 1934, we have built up a vigorous domestic sugar industry. This has involved price protection and other incentives not only for sugar crop growers but for other elements of the industry, as, for example, the refiners who benefit from the strict limitation on the quantity of the sugar that may be imported in a refined state for direct consumption.



Under conditions of free trade, where the forces of the marketplace govern, much of our domestic sugar industry would not survive. Under the abundant world supply situation which is expected to prevail in the 1960's, there would be an abrupt adjustment to a lower price level from foreign competition. Thus, prices to consumers might well average significantly lower than in the past but at the same time substantial instabilities in prices and supplies might be introduced. This could be quite severe, particularly in times of world tensions when the flow of supplies would be jeopardized. Although the effect on our foreign trade would be favorable as dollar earnings of our foreign suppliers increased, it should be noted that sharply lower prices would offset a significant part of the increase in volume.

While the virtues of free trade and a competitive world are real, in the case of sugar and many other commodities we have lived in a different environment for a long time. Moreover, we need to keep in mind that our sugar system is not unique and that much of the world sugar moves under special arrangements, some quite similar to ours.

6. The alternatives open to the United States involve three basic approaches—quotas, tariffs, or direct payments to producers—and combinations involving more than one approach. There are some advantages in spreading adjustments through the combined approach. Thus, our present sugar program, in aiming toward the basic goals of the Sugar Act, relies primarily on quotas but incorporates as well a tariff, an excise tax, and payments to producers.

Section VII of this report describes these three main approaches, some possible modifications as well as the major considerations involved in each approach.

### *Quotas*

A quota system represents the highest degree of control among the alternative approaches. Our present quota system imposes detailed regulation upon the marketing of domestic and foreign sugar and through that mechanism the attainment of certain price objectives. This broad approach has the capability of insuring a steady flow of supplies and a high degree of price stability which effectively isolates the U.S. sugar market from the world market. But the price level is comparatively high on the domestic and foreign sugar which is allowed to be marketed in the United States. And both domestic producers and foreign suppliers would like to sell much more sugar at the prices which prevail in the U.S. market.

This approach imposes on the U.S. Government a difficult responsibility for allocating shares in supplying the U.S. sugar requirements for which there are no entirely satisfactory criteria. In the absence of Cuba—and its historical predominant share of the U.S. imports—the problem of allocation of quotas among other foreign supplying countries in the future would be much more difficult than in the past, especially if we need to provide for the possibility of the reentry of Cuban sugar some time in the future.

The overall domestic quota has permitted some flexibility in the areas of domestic production. Further, in recent years the failure of Puerto Rico and Hawaii to fulfill their quotas has allowed production increases in mainland areas. This year there will likely be a substantial increase in domestic output. With the large potential for future production, problems of allocating among domestic producers

will become increasingly difficult within the present price and quota framework.

The "global" import quota, described in section VII, would avoid problems of allocating among individual foreign supplying countries by providing the opportunity for all countries to compete for shares in the quota established for foreign sugar. Under such a situation, the U.S. Government should move to capture the premium of the U.S. market price over the price in the "world free market." Thus, the global import quota approach would have some of the features of a tariff approach.

### *Tariffs*

The traditional tariff system would represent a substantial loosening of controls as compared with the quota system. There would be no restrictions on where the domestic sugar is produced or where the foreign supply originates. Imports of raw sugar would be at the "world free market" price and the U.S. price would move with it but at a higher level, depending on the size of the tariff.

A high tariff would be required to provide the degree of price protection which the domestic producer has realized in recent years from the present program. If the tariff is the only instrument of protection, the present full duty rate of 62½ cents per hundred pounds would need to be raised to about \$3.50, keeping in mind that there would be no excise tax or direct payment to growers or restrictions on marketings.

It should be noted that to continue the 1959 level of protection or incentive per unit to domestic producers without production restrictions, would bring a very substantial increase in domestic production to a level providing perhaps 70 percent of our total requirements by 1970. Under these conditions, as shown in detail in section VII, gross receipts of domestic producers would be sharply improved because of the substantial increase in production, although the increase in domestic supplies could well strengthen the price bargaining position of processors relative to growers. The consumer would gain no advantage. Treasury receipts would be increased from the higher import duties, substantially at first but diminishing over the years as imports declined.

It should be made clear that this is a simplified illustration of the direction of forces involved in an approach which relies only on a fixed tariff to provide the same degree of protection as domestic producers presently receive. It assumes many factors constant, particularly the "world free market" price and the level of returns per unit to domestic producers. These, of course, in reality would vary according to developments in the world demand and world supply of sugar. For example, a substantial reduction in our imports, as is involved in this illustration, would likely exert some downward pressure on the level of "world free market" prices.

Over the long run, it would be possible for Congress to adjust the tariff rate to provide roughly the distribution that might be desired as between domestic production and foreign suppliers, but certainly not with the precision of a quota system. Thus, a tariff rate of about \$2.75 to \$3 per hundred pounds might well maintain roughly the present statutory distribution of domestic and foreign supplies. Here, it should be kept in mind that use of a tariff rate alone designed to hold

about the present distribution, would mean lower returns to domestic producers as compared with the present situation; some lower prices to consumers as well as an increase in Treasury revenues from the tariff. Of course, under any tariff situation which is designed to maintain domestic production, returns to foreign suppliers would be reduced.

There are possible modifications of a tariff system to yield attributes of the quota approach. The flexible tariff, described in section VII, could be used to control imports into the United States and thus the supply and price in the United States by raising or lowering the tariff rate as the situation might require according to the objectives established. This might make for some irregularity of foreign supplies available to the United States, particularly if there should be sharp and frequent changes in the duty rate. A tariff quota system would establish a tariff for a specified amount of sugar to be imported and shipments in excess would be subject to much higher rates. Under this situation, there might well be a race among foreign suppliers to fill the quota with an erratic movement of supplies to this country.

In considering tariff systems, it should be kept in mind that our treaty with the Philippines gives that nation substantial tariff concessions on sugar until 1974.

#### *Direct payments to producers*

This approach, which also involves a loosening of controls, basically provides for a lower level of prices approximating the "world free market" but at the same time makes a direct payment to the domestic producer to bring returns per unit up to a specified level. Thus, prices to consumers would be generally lower than under the other approaches but quite variable.

If the 1959 return per unit to domestic growers were to be maintained while at the same time prices were to move toward the "world" level, a direct payment of about  $3\frac{1}{2}$  cents on each pound produced in the United States would be required in the absence of other protective devices. This compares with the present payment averaging 0.7 cent per pound. Again it should be noted that the current level of returns to domestic producers, if maintained over time, would bring a substantial expansion in production unless restrictions were imposed.

These payments—which would be very substantial—could be financed by direct appropriation from the Treasury, with or without an excise tax. Since sugar is so widely used, the incidence of the excise tax would bear more or less equally on all people. While an excise tax on all sugar (domestic and foreign) of about 2 cents per pound could be used to finance direct payments for the present domestic share, about  $2\frac{1}{2}$  cents might be required by the end of the decade, because the domestic share would increase. The advantage to users of lower prices for sugar would narrow to about three-fourths of a cent per pound by 1970. The effect on domestic producers—as under the tariff with similar incentives—would be favorable involving a substantial gain in production, while the reverse again would be the case for foreign suppliers as a group, involving lower prices as well as lower volume.

Again, we need to note the static character of this example which has been designed to show the direction of forces involved in a direct payment approach which maintains producers' returns per unit.



This, too, has the qualifications of the tariff illustration, particularly the assumption of stable world market prices.

For the direct payment approach—as for the tariff approach—the amount of payment could be adjusted to provide in rough measure any distribution as between domestic production and foreign suppliers that might be desired. Again, to hold approximately the present statutory distribution, without production restrictions, would mean a lower rate of payment to domestic producers—perhaps  $2\frac{3}{4}$  to 3 cents a pound. The excise tax necessary to finance it would be somewhat lower and a small further reduction in prices to users would occur.

### *Combination of approaches*

Each of the approaches considered so far has some shortcomings which can be mitigated at least in part by combinations. We could, of course, devise many alternative combinations involving two or more of the approaches, with varying degrees of emphasis on each to approach our national objectives. Only two illustrations are presented in detail in section VII, one involving a combination of two approaches and the other a combination of all three. The present sugar program is one illustration of a combination of all the approaches, but with primary reliance on the quota system.

Section VII shows an illustration involving the elimination of the quota system with reliance on tariffs and direct payments to provide protection to the domestic industry. This example is designed to show how a combination of tariff and direct payments to producers could be adjusted, in the absence of quota controls, to yield an approximate distribution of our total requirements as between domestic and foreign suppliers—in this instance about 60 percent from domestic sources. Here, again, the illustration is subject to all the qualifications attached to the previous examples relating to the tariff and direct payments approaches.

This example involves some reduction—about one-half cent per pound—in the incentive level received by domestic producers in 1959 so as to dampen the increase in production that might otherwise occur. Even so, domestic production, free of quotas, might well rise to  $6\frac{1}{2}$  to 7 million tons by 1970, about a third more than in 1960 (and almost 20 percent above the unrestricted production of 1961). Protection to the domestic producer over the foreign producer would be obtained from a tariff of  $1\frac{1}{2}$  cents and a direct payment of about the same amount (financed mostly from the present excise tax of one-half cent but also partly from tariff receipts). The price of sugar at New York would be lowered by about  $1\frac{1}{4}$  cents, although as we have noted previously, not all of this reduction would likely accrue to the ultimate consumer; particularly for those products in which sugar represents a small part of the total value. The volume of imports of sugar, to be obtained at the world market, by 1970 might be at about the same level as in 1959.

But even a combined approach, as is here illustrated, while offering certain advantages, primarily lower prices to consumers and relief from the obligations and difficulties of quota management, has some serious drawbacks as well. Prices, while lower, would be more variable reflecting changes in the world markets and subject to the rise and fall of international tensions from which we have been effectively isolated. Here, it should be noted that in the United States stable prices and assured markets in the past have been accompanied by a

rapid rate of technological advance through research and investment. Our foreign sources of supply might be somewhat less secure than in the past, although the present prospect of continued abundant world supplies is reassuring. While foreign suppliers as a group would market about as much sugar in 1970 as in 1960, it should be recognized that the Philippines would start with a greater special advantage over other foreign suppliers than they have now although the tariff concessions in our treaty diminish over time.

Section VII also carries an illustration of a combination of all three approaches including tariff, payment, and quotas to maintain the domestic portion of the U.S. market at 55 percent as presently in legislation. Domestic-producer returns per unit are maintained at 1959 levels but the quota premium for foreign sugar is reduced from over 2 cents to about one-half cent per pound. About one-third of the foreign share would be allotted to specific countries but two-thirds—which has been approximately Cuba's share—would be obtained in the world market in such a way as to retain the quota premium for the U.S. Treasury until such time as Cuban supplies may return. Domestic producers would have the benefit of a U.S. price above the "world free market" price (as a result of the 1-cent tariff and the  $\frac{1}{2}$ -cent quota premium) and also would receive direct payments of 2 cents per pound (which could be financed mostly from a 1-cent excise tax on all sugar but also partly from tariff receipts. The price of sugar at New York would be lowered by about three-fourths cent from 1959, assuming the processing margin remained unchanged.

While this combined approach moves in the direction of better assuring foreign supplies for this country, there may well be questions as to whether the continued absence of Cuba as a supplier and the reduced quota premium provide much safeguard for the flow of foreign supplies or for stability in prices in the event of a period of international tension. Further, the problems of allocating foreign shares to individual countries remains. Similarly the problems of allocating domestic shares among areas and among individual producers continue.

These examples are merely illustrations. They have no meaning either in their design or in the levels of the instruments used beyond that of demonstrating how differing objectives could be met. There are literally hundreds of different combinations that could be designed in the particular mix of approaches and in the levels of the various mechanisms—tariff, payment, and quota. It should be observed that the tariff makes itself felt as a protective device on the price level advantage to the domestic producer over the foreign supplier whereas the excise tax applies to all sugar, domestic or foreign. The direct payment provides income supplements to the domestic producer.

Moreover, these examples do point up the dilemmas in developing a sugar policy which gives due consideration to the many interests and problem areas involved.

7. Finally, we realize that the Congress will need to consider alternatives for a sugar policy in relation to other national objectives, such as our foreign policies and our policies for agriculture.

For many years, the United States has directed its efforts toward reducing trade barriers and encouraging an expansion in world trade under GATT. We have made known our concern over the barriers



to our trade, particularly to our exports of agricultural commodities, contemplated by the European Common Market. We recognize also that there may be other elements involved in our national foreign policy, political as well as economic, which could influence the development of a sugar policy in the full national interest.

Further, there are now substantial pressures to expand domestic sugar production sharply and widen opportunities for our farmers. We have noted that while average crop prices have moved to a level some 15 percent lower than in 1953, per unit returns for sugar crops have been maintained. We should keep firmly in mind that developments in agriculture generally in the period ahead will have an important bearing on the competitive position of sugar crops relative to other farm opportunities.

## I. BACKGROUND OF THE U.S. SUGAR SYSTEM

The geographic pattern of sugar supplies for the United States began to assume its pre-1960 form following the treaty of 1875 with Hawaii and the later changes in political status of Cuba, Puerto Rico, and the Philippines. Sugar from Hawaii was admitted free of duty under the treaty with Hawaii. Sugar from Puerto Rico was admitted free of duty to the United States following the treaty with Spain. Sugar imported from the Philippines was also given preferential treatment and imports became duty-free in 1909. Under the Reciprocity Act of 1902, a 20-percent preferential in duty on Cuban sugar was established.

The United States has imposed a tariff on the importation of sugar almost continuously. Originally the tariff on sugar was almost wholly a measure for raising revenue. As the domestic industry began to increase its output, in the latter part of the 19th century, the tariff gradually became more of a protective device. The U.S. tariff on raw sugar from Cuba increased from about 1 cent per pound during the 1914-21 period to 1.76 during most of the 1920's, and to 2 cents per pound under the Tariff Act of 1930. With the advent of the quota system in 1934, the tariff rates on raw sugar from Cuba were sharply reduced. Further, reductions since have lowered the rate to 0.5 cent per pound.

### SITUATION AND LEGISLATION DURING THE 1930'S

During the late 1920's, the United States received annually about 3.7 million tons of sugar from Cuba, about 2 million tons from domestic offshore and mainland sources, and 0.6 million tons from the Philippines. (See table 8, p. 79.)

This picture changed rapidly in the early 1930's. Production of sugar in the domestic areas and the Philippines increased to 4.7 million tons, or some 40 percent, from 1929 to 1933. During the same period, exports of sugar from Cuba to the United States declined nearly 2.6 million tons, or 58 percent. About two-thirds of the sugar produced in Cuba was exported to the United States and production in Cuba declined in line with the drop in exports. (See table 9, p. 80.)

The depression years of 1930-33 had a major effect on our sugar situation. Consumption declined and domestic and Philippine pro-

duction increased under tariff protection and extremely low prices for other crops. At the same time, the worldwide depression and the decline in our import requirements depressed world sugar prices.

Cuban sugar producers were faced with declining exports to the United States and a decline in prices to ruinously low levels.

Year	World raw sugar price, Cuban basis	Price for shipment to United States under quota legislation	Cuban exports to United States
	<i>Cents per pound</i>	<i>Cents per pound</i>	<i>Tons</i>
1930.....	1.27		2,645,000
1931.....	1.13		2,482,000
1932.....	.78		1,791,000
1933.....	.86		1,573,000
1934.....	.91	1.37	1,896,000
1935.....	.88	2.21	1,830,000
1936-40 average.....	1.11	2.04	1,675,000

With the passage of the Jones-Costigan Act in May 1934, prices to Cuban producers on U.S. sales not only improved substantially compared to world prices, but the volume sold to the United States increased over the low levels of 1932-33.

The Jones-Costigan Act provided a framework for setting up a system of quotas for both domestic areas and foreign countries. The broad purpose of this act and succeeding sugar quota laws has generally been regarded as being to provide U.S. consumers with a safe and adequate supply of sugar at prices which would both maintain the domestic sugar industry and be fair and reasonable to consumers. An additional purpose of sugar quota legislation has been to promote the export trade of the United States.

The Jones-Costigan Act authorized the Secretary of Agriculture to determine each year the sugar consumption requirements of the United States, and to divide these requirements among the various domestic producing areas and foreign countries so that the total quotas would equal the consumption requirements.

The law specified certain standards to be used by the Secretary in making these determinations. The annual consumption requirements were to be that quantity of sugar which the Secretary determined could be marketed at a price which would maintain the domestic sugar industry and be fair and reasonable to consumers. The Secretary was empowered to revise his determination whenever necessary during any calendar year.

The division of consumption requirements into quotas for various producing areas, including foreign countries, was made largely on the basis of the supplies obtained by the United States from each area during the 3 years, 1931-33.

The Jones-Costigan Act also provided for a processing tax of 50 cents per 100 pounds on domestically produced and imported sugar. The proceeds of this tax were used to make payments to producers in domestic areas in return for meeting certain conditions, including limitation of output.

The Jones-Costigan Act was replaced by the Sugar Act of 1937 because of the decision of the U.S. Supreme Court in the *Hoosac-Mills* case. This act substituted an excise tax on sugar for the

processing tax and provided that the proceeds of the excise tax should be paid into the general fund of the U.S. Treasury.

In addition to these tax changes, the 1937 act specified the exact manner in which U.S. sugar consumption requirements should be divided into quotas for the various domestic areas and foreign countries. The division was not greatly different than that established by the Secretary of Agriculture under the earlier law.

#### DEVELOPMENTS IN WORLD WAR II AND POSTWAR PERIOD

During World War II, quotas established under the act of 1937 were suspended by Presidential proclamation. A serious shortage of sugar for the United States and its Allies developed during World War II because of the loss of supplies from the Philippines, Java, and Europe.

Acreage and production of beet sugar in the United States declined in certain war years because of competition with other crops (fig. 1). Also, there was considerable apprehension in the industry concerning the adequacy of the labor supply. The Government provided various incentives to growers and processors in domestic areas to encourage the production of sugar and to facilitate its distribution. This included arrangements for the use of labor from Mexico and the Bahamas in growing and harvesting sugar beets and sugarcane. But production in domestic areas in 1947 was not greatly different than at the beginning of the war.

From 1942 through 1947, the U.S. Government purchased at negotiated prices substantially all of the sugar produced in Cuba for the use of consumers in the United States and allied countries. In 2 of these years, part of the sugar was purchased in the form of invert molasses for use in the production of industrial alcohol for wartime use. Except for 1 year, the purchase agreements specified that the United States would buy all the sugar produced in Cuba, except for small quantities reserved by Cuba.

Beginning with our entry into World War II, the Cuban Government removed restrictions on the production of sugar and, with the exception of 1943, did not reimpose them until 1953. Prewar production, 1936-40, averaged 3.2 million tons per year, exclusive of an average of 0.4 million tons of sugar equivalent produced in invert molasses. Average annual output during 1942-46 was 4 million tons, exclusive of the invert molasses for alcohol produced in substantial quantities in 1942 and 1944. In 1947 production rose to 6.4 million tons.

Because of Japanese occupation and destruction of the sugar industry, the United States obtained only an insignificant quantity of sugar from the Philippines in 1942 and none from 1943 through 1947.

After the war, Congress passed the Sugar Act of 1948 which was similar to the earlier ones in many respects. The most striking difference was that the various domestic areas and the Philippines were granted fixed tonnage quotas which did not vary with changes in consumption requirements as determined by the Secretary of Agriculture. For Cuba and other foreign countries, the quotas were fixed on a percentage basis, Cuba received 98.64 percent and other countries 1.36 percent of the difference between consumption requirements and the sum of the fixed tonnage quotas for the domestic areas and the Philippines. This arrangement allocated substantially all of the increase



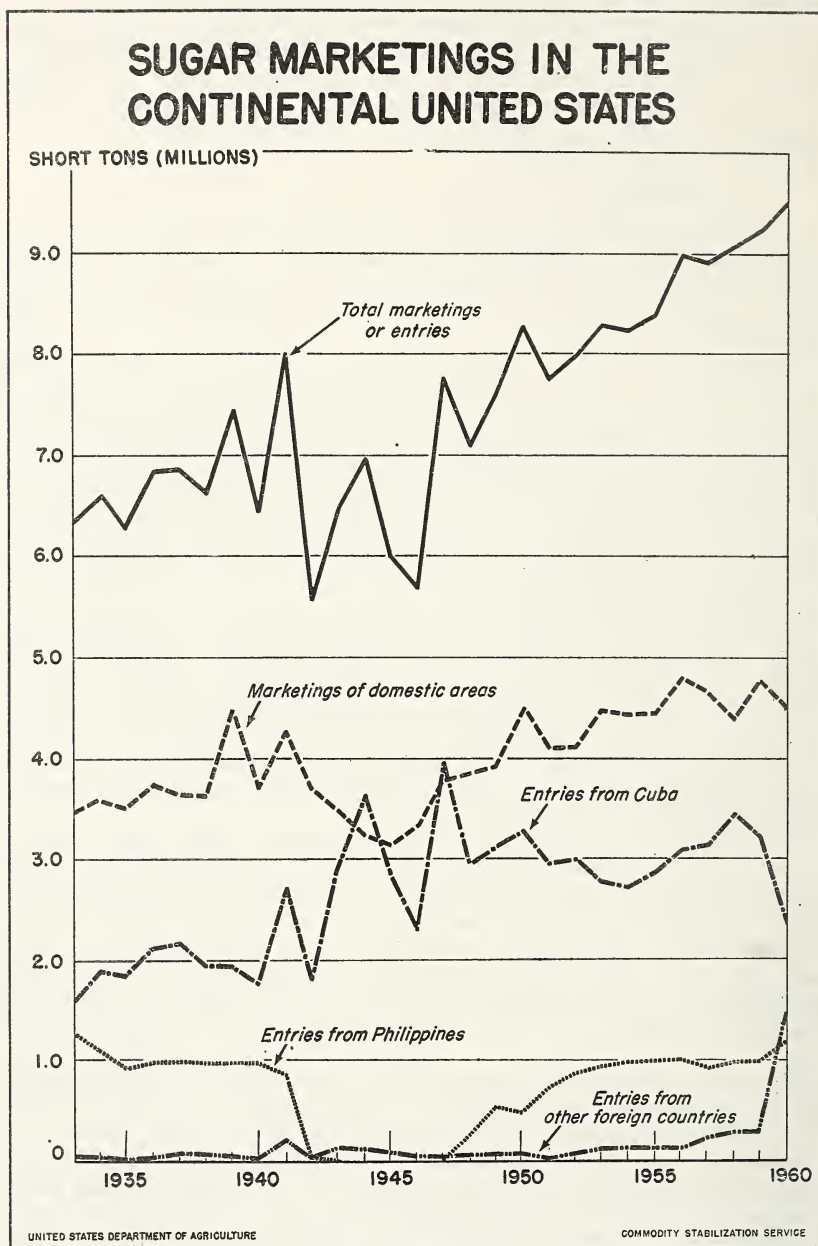


FIGURE 1

in consumption requirements to Cuba. Also, deficits in the Philippine sugar quota that were expected to arise for a few years were assigned largely to Cuba. Under these provisions of the 1948 Sugar Act, Cuba's share of the U.S. market remained considerably above the prewar level and the Government of Cuba did not use production controls until 1953, despite expanded wartime levels of sugar production. After the unusually large sugar crop of 8 million tons in 1952, production was restricted by the Cuban Government.

The excise tax and payment provisions were not changed significantly in the 1948 act.

The Sugar Act of 1948 was amended in 1951. The principal changes were: (1) An increase in the fixed tonnage quotas assigned to Puerto Rico and the Virgin Islands, and (2) an increase in the quota for foreign countries, other than Cuba and the Philippines, from 1.36 to 4 percent of residual consumption requirements.

The 1948 act was again amended in 1956. These amendments were considerably greater in scope than those of 1951. The distribution of requirements among the various quotas was continued, as provided in the 1951 amendment, for annual requirements of 8.35 million tons or less. This was the approximate level of requirements in 1955. The various domestic sugar-producing areas retained their former fixed tonnage quotas and received 55 percent of the increase in annual U.S. sugar consumption requirements above 8.35 million tons. The remaining 45 percent of the annual increase in consumption was allocated 29.59 percent to Cuba and 15.41 percent to foreign countries other than Cuba and the Republic of the Philippines. The fixed tonnage quota for the Philippines remained unchanged.

Annual consumption of sugar in the United States has increased about 3 million tons since 1934. The fixed tonnage quota for the Philippines has not been changed since 1948 when it was established at about the same level as their prewar duty-free quota. For each of the other areas, however, the quantity of sugar taken was substantially greater in 1959 than 25 years earlier.

The percentages of U.S. consumption supplied by most areas, also showed considerable change. The proportion coming from the Philippines declined because of the fixed tonnage quota. The percentage coming from Cuba in 1959 was substantially larger than in 1934 (34.8 percent compared with 28.4 percent). The percentage from other foreign countries also has increased greatly, although the total for these countries in 1959 amounted to only about 3 percent of U.S. requirements.

In 1959, the United States obtained slightly more than one-half of the sugar consumed from domestic areas, which include 24 mainland States, Hawaii, Puerto Rico, and the Virgin Islands. Beets accounted for about one-fourth of the total sugar supply. Cane produced in Hawaii and Puerto Rico provided about 20 percent, and that produced in Louisiana and Florida about 7 percent. A little more than one-third of the U.S. supply was imported from Cuba, and about 11 percent from the Philippines.

During and since World War II, the price of sugar has been considerably more stable than during and after World War I (fig. 2). Over the long term the price of sugar in the United States has declined in relation to the price of other food (fig. 3). However, per capita consumption of sugar in the postwar period has been at about the same level as during the 1930's.

REFINED SUGAR PRICES, AND INDEX OF ALL FOOD PRICES, AT  
WHOLESALE IN THE UNITED STATES ANNUALLY, 1860 TO DATE

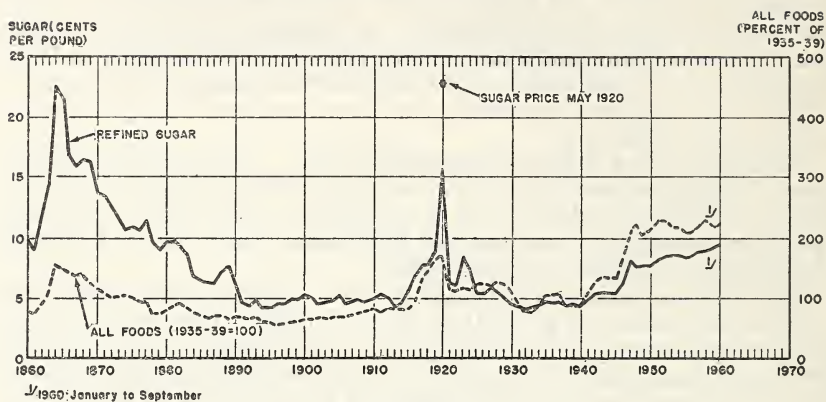


FIGURE 2

PRICE OF SUGAR IN RELATION TO PRICES OF ALL FOODS AND  
PER CAPITA DISTRIBUTION OF SUGAR 1860 TO DATE

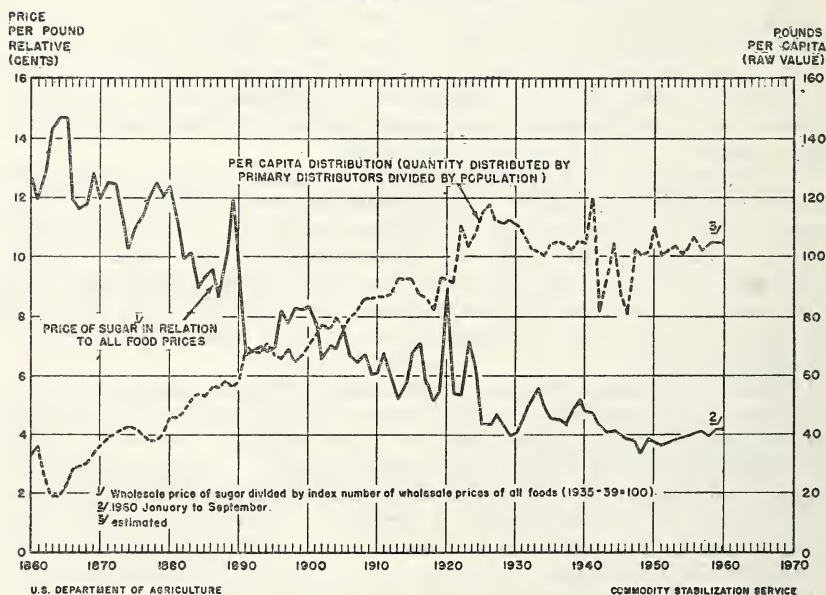


FIGURE 3



## RECENT DEVELOPMENTS

In 1959 the Sugar Act came under review for extension beyond the expiration date of December 31, 1960. The Castro government had just attained power in Cuba. Because of uncertainties about the future of the Cuban sugar industry and its relationship to the U.S. sugar market, legislation in mid-1960 extended the act only to March 31, 1961. This legislation provided for presidential determination of the quota for Cuba without regard to other provisions of the act, and for replacement of any quantities involved with sugar from other areas. Cuba's share in any domestic area deficit was transferred to other domestic areas. The remainder was allotted to other countries already having quotas under the act and provision was made for obtaining any additional supplies needed from other sources.

The 1960 quota for Cuba as determined by the President under the July amendments of the law did not permit imports of Cuban sugar for U.S. consumption after mid-July 1960. As specified in the act, the replacement supplies for 1960 were allocated to countries already having quotas to the extent these countries were expected to have supplies available. The remainder, about 20 percent of the total, was authorized for purchase from other Caribbean, Central, and South American countries.

The Republic of the Philippines supplies about 176,000 short tons, raw value, in addition to its fixed quota of 980,000 tons. Other foreign countries having quotas under title II of the act totaling about 433,000 tons as of August 1, 1960, were allocated an additional 870,000 tons to replace Cuban sugar. Most of this sugar was authorized for purchase from the Dominican Republic, Mexico, and Peru. In addition, about 200,000 tons were purchased from four countries not having quotas; the bulk of it from Brazil and the Federation of West Indies and British Guiana.

The sugar needed to replace Cuban supplies, known as non-quota-purchase sugar, was purchased by the private trade through normal commercial channels. Foreign sellers obtained the same price for this sugar as prevailed for U.S. quota sugars, except for the Dominican Republic, this country's allocation of about 322,000 tons was authorized for purchase, subject to a fee of 2 cents per pound. For the first quarter of 1961, the sugar needed to replace Cuban supplies has been allocated in a similar manner except that the fee on sugar from the Dominican Republic was raised from 2 to 2¼ cents per pound.

Prior to July 1, 1960, Cuba committed 1 million tons to the U.S.S.R., largely on a barter basis, for each of the 5 years 1960 through 1964. Subsequent to the proclamation by the President in July reducing the quota for Cuba by about 700,000 tons, the Cuban authorities announced an additional sale of a similar quantity to the U.S.S.R. for delivery in 1960. Later, 500,000 tons were sold on a barter basis to Communist China for each of the 5 years, 1960 through 1964. Altogether, Cuba committed a total of 2.2 million tons, about 2.5 million short tons for 1960 to the U.S.S.R. and Communist China. Cuban exports to the U.S.S.R. were about 300,000 tons in 1959.

The initial level of total U.S. sugar requirements upon which quotas and non-quota-purchase allocations are based was 9.4 million tons, raw value. This was increased by a total of 1 million tons in several increments during July and early August 1960. Despite the



drastic change in sources of foreign sugar, raw sugar price fluctuations were relatively small. The highest quotation for raw sugar of 6.70 cents per pound prevailed on only 3 days in mid-July. In early November 1960, some pertinent sugar price quotations with the comparable quotations for 2 preceding years were as follows:

[Cents per pound]

	1960	1959	1958
Raw sugar, duty paid New York.....	6.52	6.57	6.50
Wholesale refined cane, New York basis.....	9.70	9.55	9.35
Wholesale refined beet, Chicago-west basis.....	8.95	8.80	8.65
Retail refined, 5-pound packages, BLS September indexes....	11.84	11.50	11.38

#### THE U.S. SUGAR SYSTEM

The principal features of the U.S. sugar system are limitations on total supplies available to consumers, Government payments to growers, an excise tax on all sugar, and a tariff on sugar imports.

Under provision of the Sugar Act, the Secretary of Agriculture each year determines how much sugar will be needed to fulfill continental U.S. requirements. The determination establishes the quota of sugar that may be marketed in the United States during the year. It is made in December for the year following, and may be revised whenever the need arises.

In making the determination, the Secretary uses as a basis the quota of sugar distributed during the preceding 12-month period ending October 31, with allowances for deficiencies or surplus in the Nation's sugar inventories and for changes in consumption caused by changes in population and in demand conditions. The Secretary then considers the relationship between wholesale prices for refined sugar and the cost of living, so that sugar prices will be neither excessive to consumers nor too low to protect the domestic sugar industry.

After overall requirements have been determined, the Sugar Act requires the Secretary to divide the U.S. sugar market among individual domestic and foreign areas, and if necessary for orderly marketing, to divide quotas among processors and importers. In the case of foreign countries and offshore domestic areas, the act limits the quantity of sugar which may be imported or brought into the United States in the form of direct consumption sugar (refined) to specified portions of the quotas for such countries and areas.

For the domestic areas, the act also requires the Secretary to divide the market among individual farms. Each farm's allotment, known as its proportionate share, may be expressed in acres, tons of sugarcane or beets, or in tons of sugar, raw value, which can be normally produced from cane or beets. The proportionate shares are not made restrictive unless the production in an area promises to exceed the quota and normal carryover, and marketing allotments imposed on processors of sugar beets or sugarcane have failed to bring about a balance between production and allowable area marketings.

In order to receive conditional payments from the Government, growers must abide by the proportionate share determination. Additional objectives of these payments are to (1) help provide adequate incomes to growers, (2) assure growers and fieldworkers a fair sharing

of returns to the industry, and (3) prevent the employment of child labor in fieldwork.

The rates of conditional payments vary with the volume of sugar produced from cane or beets grown on a farm and are graduated downward from small to large producers. The basic rate of 80 cents per 100 pounds of sugar, raw value, is paid on the first 350 short tons of commercially recoverable sugar contained in beets or cane produced on a farm. The sugar program also gives limited benefits to growers in the form of special conditional payments for crop deficiency or abandonment caused by drought, flood, storm, freeze, disease, or insects where all or a substantial part of the crop in a local producing area is damaged. Total annual payments to growers have amounted to about \$75 million in recent years.

In normal times, the limitations on total supplies in the United States, through the quota system, brings about what is called a quota premium. This premium represents the difference between the U.S. price and the world market price. In the past, the quota premium has been measured by the difference between the price at which raw sugar is sold in Cuba for shipment to the United States and the price Cuban sellers get there for sugar sold to other countries (fig. 4). This latter price is often called the world free market price.

The quota premium for 1959 averaged 2.38 cents per pound. From 1948 through 1959 it averaged 1.14 cents per pound. However, in 22 of the 144 months during the 12-year period, the price in the world free market was above the price in the United States and the quota premium was negative. The unusually high price in the world free market during these 22 months was due to conditions resulting from the Korean war and the Suez crisis.

Only a small part of the world supply of sugar is sold at the world market price. Most sugar is consumed in the countries where it is produced, and generally the growers and processors in these countries are paid a much higher price than the world market price, just as are the producers in the United States. Only about 30 percent of world sugar production enters international trade, and more than half of this moves under protective price systems, such as the preferential trade arrangements under which sugar moves to British, French, and Portuguese metropolitan markets from their respective oversea supplying areas, and the quota arrangements under which foreign sugar is imported into the United States.

Only broad implications can be drawn from the data on quota premiums. Under the quota system, sugar prices in the United States as well as those for sugar imported under the quotas from the Philippines, Cuba, and other countries have undoubtedly been higher and more stable than they would have been with no quota system and with tariffs at existing levels. Also, because much of the world sugar moves under special arrangements, the world "free" supply and prices are subject to sharp changes.

The present tariff on sugar imported from Cuba is 50 cents per 100 pounds of raw sugar. The rate for countries other than Cuba and the Philippines is 62.5 cents. The rate for sugar from the Philippines has been 10 percent of the rate on Cuban sugar since 1959. Under the terms of the revised United States-Philippines trade agreement, it is scheduled to increase gradually until July 4, 1974, then it will equal the duty imposed on sugar from countries other than Cuba. The duty collected on sugar in 1959 amounted to about \$40 million.

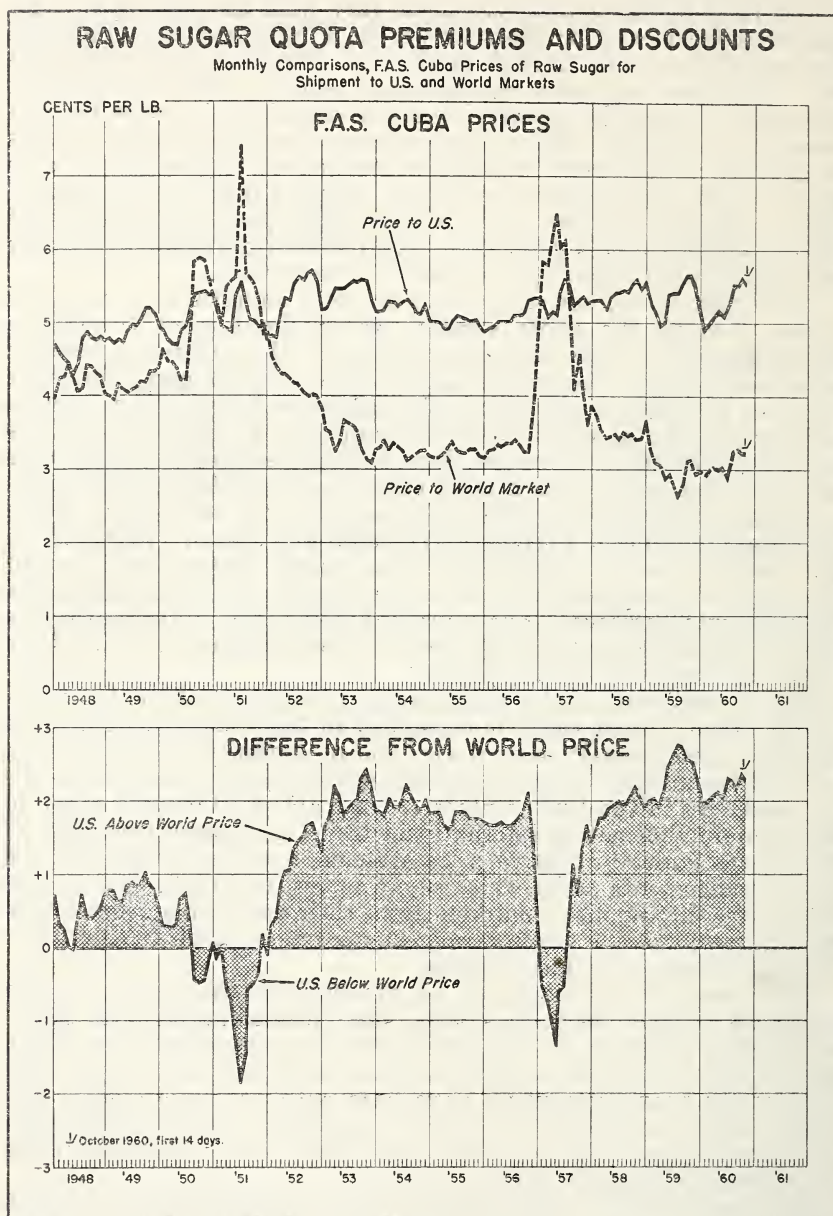


FIGURE 4



An excise tax of 50 cents per 100 pounds raw value is collected from domestic processors, refiners, or importers on both domestically produced and imported sugar. Collections in recent years have amounted to about \$90 million annually, about one-half of which has been on imported sugar.

The determination of the consumption requirements and the establishment of quotas determine the price of sugar and therefore the costs to U.S. consumers and distributors. At a given level of quotas, an excise tax reduces the income to both the foreign and domestic sugar growers and processors by the amount of the tax, assuming the quotas are filled. But the anticipated effects of the excise tax on growers' and processors' incomes are considered when requirements are determined and this results in the establishment of lower quotas than would exist in the absence of the tax, with consequent upward effects on sugar prices and shifting of the burden to consumers.

From the standpoint of other countries, the effects of a tariff on the incomes of growers and processors under a quota system are generally similar to those of a processing tax for a given requirement level. This assumes, however, that the quotas are filled. Under these conditions, a tariff reduces the income that would accrue to the foreign processors and growers by the amount of the tariff.

## II. WORLD SUGAR SITUATION

The current world sugar production and marketing situation suggests continuation of abundant sugar supplies on the world market.<sup>1</sup> There has been a pronounced upward trend in world production in recent years. The current crop is an alltime high and double the prewar (1935-39) average. A major part of this increase is being consumed in the countries where it is produced and is not moving into export channels.

World consumption is currently increasing at a slower rate than production. World stocks have increased in recent years, primarily in the exporting countries. The buildup in stocks has been reflected in weakening world prices.

World trade in sugar is characterized by special marketing arrangements. Less than 40 percent of total exports enters international trade channels without any preferential arrangements. Currently, world trade in sugar is remaining stationary or declining slightly, even though production and consumption are increasing.

### PRODUCTION

The 1960-61 world sugar crop is estimated at a record 58 million short tons. The current crop is over 4 million tons above the 1959-60 outturn which was adversely affected by drought in Europe, U.S.S.R., and Asia. This large crop reflects generally good weather in major producing countries and stepped-up programs to increase production as many importing countries strive for self-sufficiency.

Production is increasing in all parts of the world. On a continent basis, the largest quantitative increase since 1935-39 occurred in North America, including Central America and the Caribbean. This amounted to 7 million tons. (See table 10, p. 80.)

<sup>1</sup> Throughout this report the term "sugar" refers to centrifugal sugar. Some noncentrifugal sugar is produced in some foreign areas, largely for local consumption. Only insignificant quantities enter international trade.

Production has increased in nearly all producing countries. A notable exception is Indonesia, a country which has only partially recovered from disruptions which began during the war. The largest increase since prewar occurred in the U.S.S.R. where production has risen sharply in the past 6 years and is now some 4.7 million tons above the 1935-39 average. The U.S.S.R. is now the world's largest sugar producer. Other countries showing important increases since 1935-39 are Brazil, 3 million tons; Cuba, 2.6 million; India, 2.3 million; Mexico, 1.4 million; and the United States, 1.4 million tons. Increasing world production is resulting in the building and expansion of sugar mills and refineries in many countries.

#### INTERNATIONAL TRADE

World exports in 1959 approximated 16 million short tons, about the same as in the 3 preceding years, and about a million tons below the 1957 peak of 17 million tons. (See table 11, p. 81.) The leveling off in world exports may be attributed to the effects of the programs in many importing countries designed to make them more nearly self-sufficient.

The United States remains, by far, the world's largest importer of sugar. Next in order of importance are the United Kingdom, Japan, and Canada. North America and Western Europe remain the principal sugar importing areas. (See table 12, p. 81.)

The government of nearly every sugar-producing country exercises some degree of control over the production, refining, and marketing of sugar. Countries not self-sufficient in sugar generally require the payment of minimum prices to growers of sugarcane or sugar beets, and impose tariffs upon imported sugar for the protection of their domestic producers. Exporting countries usually impose export taxes or other means of raising government revenue from the industry. Price pooling to distribute the impact of the different prices in different markets is also common.

Several countries have comprehensive trading systems involving preferential arrangements with dependent oversea territories or independent countries with close political ties. These are in addition to purely domestic policies which usually have as their goal some degree of self-sufficiency by means of the usual devices to protect sugar industries of varying degrees of efficiency. Over 60 percent of the world trade in sugar moves under special marketing arrangements (table 1, p. 25). (Also see tables 13-15, pp. 81-82.) From the standpoint of the large quantities of sugar involved and its comprehensive nature, the Commonwealth Sugar Agreement of 1951 is noteworthy. It represents a long-term undertaking of the United Kingdom Government to buy stipulated quantities of sugar from Australia, the Union of South Africa, and certain other territories. Under this agreement, the United Kingdom contracts to buy fixed quantities of sugar from each area each year, a total of about 1.8 million short tons, at a price negotiated annually. In turn, each exporting member agrees to limit its total exports of sugar to Commonwealth preferential markets. The overall quotas, which include the 1.8 million tons of negotiated price quotas, total about 2.7 million tons. The agreement's original expiration date of December 31, 1959, has been extended successively. The present expiration date is December 1968.

TABLE 1.—*Centrifugal sugar: World trade in 1959, by major economic groups*<sup>1</sup>

[1,000 short tons raw value]

Importers	Exporters					
	U.S. quota holders	Common- wealth	Common Market	U.S.S.R.	All other	Grand total
United States.....	<sup>2</sup> 4,621	( <sup>3</sup> )	( <sup>3</sup> )	0	<sup>4</sup> 12	4,633
Commonwealth.....	1,053	3,147	23	9	<sup>5</sup> 435	4,667
Common Market.....	627	40	758	4	402	1,831
U.S.S.R.....	302	0	0	0	234	536
Japan.....	960	119	0	0	148	1,227
All other.....	1,184	274	355	223	1,033	3,069
Grand total.....	8,747	3,580	1,136	236	2,264	15,963

<sup>1</sup> Some foreign areas also produce some noncentrifugal sugar, largely for local consumption. All data in this report, however, refer to centrifugal sugar.

<sup>2</sup> Includes the following: From Commonwealth countries, 2 (United Kingdom, 1, Canada, 1), and the Common Market (Netherlands), 4.

<sup>3</sup> Omitted are quantities shown under footnote 2.

<sup>4</sup> From Brazil, for reexport.

<sup>5</sup> Includes 2 from the United States.

Source: Sugar and Tropical Products Branch, FAS, USDA, Dec. 15, 1960.

About two-thirds of the sugar available for export under the Commonwealth agreement is purchased by the British Sugar Board at the negotiated price. The sugar is resold immediately to commercial buyers at the prevailing world market price, and enters the United Kingdom market on this basis. The remainder of the quota sugar may be exported to the United Kingdom or to other Commonwealth preferential markets at the prevailing world market price plus the preferential tariff. These exports mainly go to other Commonwealth countries, such as Canada and New Zealand.

Members of the Commonwealth sugar agreement may also export sugar to non-Commonwealth countries, but their total exports to all destinations are limited by the International Sugar Agreement to about 2.9 million short tons.

The negotiated price paid to Commonwealth producers usually is substantially higher than the world market price. The losses incurred by the British Sugar Board are recovered by means of a surcharge levied on all imports of sugar and molasses into the United Kingdom. The surcharge also provides funds to pay the British Sugar Corp. for losses incurred in selling sugar processed from sugar beets purchased from farmers in Great Britain at a fixed price determined annually by the Government. The sugar produced by the domestic beet industry amounts to about 25 percent of the sugar consumed in the United Kingdom.

The price premium paid to Commonwealth sugar producers in 1959 was approximately the same as the price premium accruing to our domestic areas and foreign suppliers under the Sugar Act, about 2.4 cents per pound.

Preferential arrangements in other groups of countries have a similar effect upon prices. France and Portugal have developed patterns of sugar trade with associated oversea territories which tended to insulate the areas concerned from competition in world markets.



The six European Common Market countries, with their associated oversea territories and dependencies, only recently have started to act jointly in regard to sugar. This Common Market group in 1959 was a net importer of sugar. Only about 1.1 million tons were exported from these countries and their territories, but 1.8 million tons were imported.

The U.S.S.R. in 1959 was the destination of 536,000 tons of world sugar exports and the origin of 236,000 tons of sugar exported.

The so-called free world market for sugar applies only to those residual quantities of sugar moving without the benefit of preferential arrangements. This is the part of world trade with which the International Sugar Agreement is most directly concerned. The predominant portion of the world exporters and a substantial part of the world's importers of sugar are members of the international agreement. Some 6 million short tons of sugar per year, depending upon the quota level, are chargeable to international agreement quotas. This quantity, plus exports of nonmembers, is sometimes referred to as the free market movement, and amounts to only about 10 to 15 percent of total annual production. Total exportable supplies in nonmember countries amount to less than 1 million tons of sugar. For 1961, they have been estimated at 660,000 tons.

The United States has for many years operated under its Sugar Act which provides quotas for domestic and foreign suppliers of sugar. The limitation of supply achieved by quotas has resulted in prices usually somewhat above those in the so-called world free market. In 1959, the United States imported about 4.5 million tons of sugar under the provisions of the U.S. Sugar Act.

The value of U.S. imports of sugar amounted to about \$500 million in 1959. Imports of sugar in 1959 were up slightly over the 1955-58 average of \$460 million. During the past decade, imports of sugar constituted one of the most stable segments of the entire U.S. foreign trade picture.

Sugar ranked fourth valuewise among the Nation's imports of leading primary commodities during 1959. Although comprising a little less than 3½ percent of our overall merchandise imports, and somewhat under 15 percent of total imports of food and beverages, it provided an income of half a billion dollars to foreign countries. Seventy percent of this amount accrued to Cuba, 22 percent to the Philippines, and the remainder to the Dominican Republic, Peru, Mexico, and some other Latin American suppliers.

Since the supplying countries fall in the class of primary producers of other raw materials and farm products, their incomes are often subject to rather violent shifts in world market conditions for such basic products, including sugar. Cuba (up to recently) and the Philippines have enjoyed a protected sugar market in the United States—a market characterized by relatively stable prices at levels generally above world sugar prices—and this has had a beneficial effect on the domestic economies and on the related balance-of-payments positions of these nations.

Purchases of sugar from Cuba and the Philippines in 1959 comprised about three-fourths and one-third, respectively, of total U.S. imports from such sources. Both these countries have been prominent customers for U.S. exports.



## CONSUMPTION AND STOCKS

World consumption of sugar in 1960 is estimated at 53.5 million short tons, raw value, or 36.6 pounds per capita. For the world as a whole, per capita consumption of sugar in recent years has been increasing at the rate of about 0.7 pound per year. In general, the rate of increase has been fastest in countries which have begun to move toward greater economic prosperity and industrialization, but where consumption is still relatively low. Further increases in such countries may continue unless global wars or widespread economic depressions halt the upward trend. In countries such as the United States, where consumption already is high, there has been little or no change.

Population and per capita increases in recent years have resulted in a gain in total consumption of close to 2 million tons of sugar per year. Annual per capita consumption in the U.S.S.R., the world's largest producing country, is about 62 pounds. Prices in the U.S.S.R. are at a very high level.

World stocks of sugar increased sharply during the 1958-59 season, rose moderately in 1959-60, and are expected to increase sharply again in 1960-61. Increasing stocks have resulted in price declines which have brought distress to some countries heavily dependent upon sugar exports as a major source of national income.

Complete and reliable data for sugar stocks are not available for all countries. However, it is assumed that most of the excess stocks are held in exporting countries. A recent survey has been made of the season-end stocks held in 17 selected countries for each of the past 10 seasons. These countries account for nearly three-fourths of the world's sugar exports. After rising to nearly 4 million tons, raw value, as a result of the large sugar production in 1951-52, aggregate stocks in these countries trended slightly downward until 1958-59, when they again increased substantially. The carryover at the end of 1958-59 was more than 4.7 million tons. Indications are that total world stocks increased moderately during the 1959-60 season, even though some countries reduced carryovers because of reduced output resulting from drought.

The large 1960-61 world sugar production now forecast will result in a further accumulation of world stocks, even though consumption will increase.

## PRICES

The sharp increase in world stocks of sugar during the 1958-59 season has been reflected in a general weakness in prices paid for sugar in world markets since that time. Historically, the f.a.s. price of raw sugar at Cuban ports for sale to destinations other than the United States has been widely accepted as the barometer of world sugar prices in the "free" market because of Cuba's dominant position as an exporter.

Prices trended downward during 1959 and continued at the lower level well into 1960. Prices of raw sugar f.a.s. Cuba averaged slightly less than 3 cents per pound in 1959 and about 3.1 cents per pound during the first half of 1960. In mid-1960, Cuba announced a policy of not selling below a minimum of 3.25 cents per pound. However, with the new situation in the world market, the Cuban quotation may no longer be a reliable indicator of the level of prices in the world free market.

Although the prices for raw sugar f.a.s., Cuba have been representative of sugar moving in "free" world markets, they bear little or no direct relation to retail prices in many countries. Furthermore, retail prices often have little direct relation to the price of raw sugar for consumption in the same country. Retail prices as of January 1, 1960, for 67 countries are shown in table 2, together with per capita consumption levels for the year 1959.

A frequency distribution of retail prices based on data shown in table 2 follows:

Number of countries:	[U.S. cents per pound]	Price range
9	-----	Below 6 cents.
12	-----	6 to 8.9.
23	-----	9 to 11.9.
8	-----	12 to 14.9.
9	-----	15 to 17.9.
6	-----	18 or over.

TABLE 2.—*Sugar: Retail prices Jan. 1, 1960, and per capita consumption, 1959: selected countries*

#### IMPORTING COUNTRIES

	Price <sup>1</sup>	Con- sump- tion <sup>2</sup>		Price <sup>1</sup>	Con- sump- tion <sup>2</sup>
Singapore	5.4	-----	France (metropolitan)	11.5	73.0
Aden	5.6	32.3	Iceland	11.5	129.4
Jordan	6.0	<sup>3</sup> 51.0	United States	11.6	<sup>3</sup> 104.0
Colombia	6.3	<sup>3</sup> 42.0	Netherlands	11.9	<sup>3</sup> 100.7
Nigeria	6.9	4.3	Iran	12.1	35.5
Sudan	7.2	26.3	Venezuela	12.4	71.6
Bolivia	7.6	44.0	Argentina	12.7	81.3
Malaya	7.6	<sup>4</sup> 70.8	Sweden	12.7	101.4
Iraq	8.1	63.2	Ceylon	13.1	42.4
Norway	8.6	<sup>4</sup> 98.6	Cambodia	13.4	-----
Ireland	8.7	<sup>3</sup> 110.0	Germany, West	13.5	<sup>3</sup> 70.0
Switzerland	9.1	105.9	United Arab Republic (Egyptian region)	15.7	29.0
New Zealand	9.3	98.2	Pakistan	16.1	5.3
United Kingdom	9.3	127.7	Thailand	16.1	9.0
Morocco	9.4	69.5	Finland	16.5	95.7
Canada	9.5	103.0	Israel	16.6	<sup>3</sup> 75.0
Spain	10.3	34.3	Greece	16.7	<sup>3</sup> 28.0
Portugal	10.4	35.1	Italy	17.6	43.7
Ghana	10.5	22.8	Japan	17.9	31.4
United Arab Republic (Syrian region)	10.5	29.8	Vietnam	22.0	<sup>6</sup> 4.2
Austria	10.8	<sup>3</sup> 86.0	Yugoslavia	25.7	36.0
Ethiopia	11.0	4.5	Korea, South	31.7	5.6

#### EXPORTING COUNTRIES

Peru	3.6	<sup>3</sup> 56.0	China (Taiwan)	9.6	<sup>3</sup> 26.0
Brazil	4.4	<sup>3</sup> 83.0	Costa Rica	9.6	71.0
Panama	4.7	43.2	El Salvador	9.8	39.2
Cuba	5.5	110.0	India	10.1	14.6
Mexico	5.6	70.3	Surinam	11.5	<sup>3</sup> 54.7
Union of South Africa	5.8	103.7	Dominican Republic	11.9	62.7
Indonesia	5.9	18.1	Belgium	13.7	70.3
Haiti	7.5	22.9	Turkey	16.4	<sup>3</sup> 30.0
Denmark	7.9	125.5	Germany, East	19.4	<sup>3</sup> 70.0
Guatemala	8.0	38.2	Hungary	19.9	61.4
Philippines	9.3	<sup>3</sup> 28.7	Poland	22.7	69.7
Australia	9.3	124.3			

<sup>1</sup> U.S. cents per pound, from Sugar Yearbook, 1959; International Sugar Council.

<sup>2</sup> Pounds per capita raw sugar basis. Unless otherwise indicated, derived from International Sugar Council data for consumption, and United Nations data for population.

<sup>3</sup> Foreign Agricultural Service data used. Calendar year per capita consumption otherwise indicated would be out of line with trend.

<sup>4</sup> Includes Singapore.

<sup>5</sup> USDA estimates used.

<sup>6</sup> Includes Cambodia, Laos, Vietnam.

The range of 9 to 11.9 cents per pound included more than a third of the 67 countries. The U.S. price of 11.6 cents was near the upper limit of the range, while the prices in the United Kingdom, Canada, and Australia were near the lower end of this range.

The wide range of retail prices is explained by a variety of taxes, customs duties, other regulations and arrangements in the various countries in addition to the actual cost of raw sugar. While some countries levy little or no taxes or charges, most of them impose some type of taxes or charges for regulatory or revenue purposes. Price variations also result from qualitative difference in sugar.

According to a report entitled "A Survey of Sugar Prices" published in 1959 by the International Sugar Council, the Latin American countries have the lowest tax rates. The British Commonwealth and the United States impose taxes which are about half the general level of those in Western Europe. Asian and African countries levy the highest rates.

The absolute level of retail sugar prices at any one point of time is perhaps less significant than the relationship between prices for sugar and those for other foods, and the changes in this relationship over a period of time. Sugar prices were studied by FAO from this viewpoint in 50 countries, which account for 72 percent of the world consumption. This study shows that " \* \* \* since 1938 sugar has become cheaper relative to all other foods in 38 countries out of 50, and more expensive in 11 \* \* \*." <sup>2</sup>

### III. THE U.S. SUGAR SITUATION

Several aspects of the present sugar situation in the United States are important in considering future sugar policies. Of special note are the recent trends in domestic production, factors in the distribution of mainland and offshore deliveries, and recent changes in sugar prices.

In the postwar period, domestic production has expanded at about the same rate as consumption. Mainland production of sugar has increased faster than offshore production with the most rapid rise in beet sugar. The large increase in beet sugar marketings has tended to lower the returns per unit to beet growers relative to the price of cane sugar in New York.

From 1947-60, retail prices of sugar increased slightly more than the average price of all foods but less than the overall consumer index. Gross returns per ton (price plus payments) to sugar crop growers in the postwar period have been quite stable.

### MAKEUP OF THE INDUSTRY

The domestic sugar industry includes U.S. sugar growers, processors, and refiners. Nearly 45,000 farms grow sugar beets or sugarcane for sugar. There are 64 sugar beet factories, 108 cane sugar mills, and 33 refineries in the United States.

Investment in the sugar industry in 1959 totaled about \$1,650 million of which \$750 million was farm investment utilized for sugar crops and \$900 million in sugar factories and refineries.

<sup>2</sup> Trends and Prospects of World Sugar Consumption, Monthly Bulletin of Agricultural Economics and Statistics, January 1960, FAO.



About 300,000 U.S. workers are employed in producing, processing, and refining sugar. Slightly more than 100,000 man-years of field labor were required in 1958, involving about 240,000 farmworkers at the peak period.

Wages in the industry vary substantially by area and by type of worker. Fieldworkers in Puerto Rico averaged slightly over 50 cents per hour compared with 95 cents in the U.S. beet areas and more than \$1.60 (not including fringe benefits amounting to 45 to 50 cents per hour) in Hawaii. Workers in U.S. sugarcane refineries averaged \$2.51, while workers in beet sugar processing plants and raw cane mills averaged \$1.98 and \$1.27 per hour, respectively, in 1959.

The value of the farm crop plus the value added by processors and refiners totaled over \$800 million in 1958. In addition, sugar is a major raw material in a number of food industries, including soft drinks, canning, preserving, and freezing, dairy products, and confectioneries.

#### U.S. PRODUCTION

Production of sugar in terms of raw value from the 1960 crop sugarcane and sugar beets in domestic areas will be about 5 million tons. This will come from 16.8 million tons of sugar beets harvested from 938,000 acres and 26.4 million tons of sugarcane harvested from 721,000 acres.

A little over half of the U.S. sugar supply now comes from domestic areas, about the same proportion as in the past 15 years (fig. 5). In other words, domestic production has risen at about the same rate as consumption. Production from domestic beets and cane in 1958-60 averaged about 13 percent larger than in the 1948-51 period.

Production in the mainland areas rose about 38 percent from 1948-51 to 1958-60 (fig. 6). The largest increase occurred in beet sugar. In contrast, production in the offshore areas began and ended the period at the same level. Offshore production has been depressed in recent years, partly as the result of an extended strike in Hawaii in 1958 and unfavorable production factors in Puerto Rico.

In 1960, domestic production was restricted by regulations only in the beet area. Of the 14 crop years to which the Sugar Act of 1948 has applied, production controls were applied only to four crops in Puerto Rico (1953-56), six in the mainland cane area (1954-59), and six in the domestic beet area (1955-60). Production controls have not been applied in Hawaii or the Virgin Islands.

With no regulation of sugarcane or beet production, domestic sugar production in 1961 is expected to increase over 1960. Domestic sugar areas, producing about 5 million tons of raw sugar from the 1960 crop, may produce as much as 5.7 million tons from the 1961 crop. This increase will be substantially more than our increase in total requirements. Probable sugar production in 1961, by areas, is estimated as follows:

[Million tons raw value equivalent]

Sugar beet areas.....	2. 70
Mainland cane areas.....	. 73
Hawaii.....	1. 13
Puerto Rico and Virgin Islands.....	1. 12
Total.....	5. 68

Production of sugar beets in 1961 will be near practical plant capacity. In some regions, however, competition with other crops or other employment opportunities will probably reduce production below plant capacity.

#### ALINEMENT OF SUPPLIES

Because our sugar supply comes from a variety of offshore and mainland sources, the pattern of movement of sugar within the United States is intricate. This is demonstrated with 1958 data in figure 7.

The quantities indicated by the size of the "From" boxes in figure 7 are the deliveries made from sugar that either was brought in for refining or for direct consumption from domestic offshore and foreign countries or was produced from sugar beets or sugarcane within each region. The 1958 deliveries and the inventory changes in that year were associated with receipt at ports of entry and indigenous production in each region in 1958 as follows:

[Thousand short tons, raw value]

Territory	Received from offshore sources		Produced within the region from beets or cane	Total
	Foreign	Domestic		
Northeast.....	2,711	767	172	3,650
Southeast.....	462	8	130	600
Gulf.....	1,219	26	385	1,630
Chicago-West.....	35	21	974	1,030
Southwest.....	121	179	40	340
Pacific Northwest.....	11	12	400	423
Lower Pacific coast <sup>1</sup> .....	144	446	719	1,309
Total.....	4,703	1,459	2,820	8,982

<sup>1</sup> Quantities received from offshore sources abnormal in 1958 due to Hawaiian strike. 1959 volume from Hawaii of about 800,000 tons more nearly normal.

The "To" boxes in figure 7 represent deliveries by refiners, importers, and mainland sugar beet and sugarcane processors to destinations in each region.

Over 90 percent of the sugar supplied to the Northeast and Southeast in 1958 came from Cuba, the Philippines, Puerto Rico, and Florida. Cuba, alone, provided about half of the supply for the Atlantic coast and about two-thirds of the supply for the gulf. The gulf area also receives some Hawaiian raw sugar in most years as well as processing the sugar produced from Louisiana sugarcane. About 40 percent of the sugar produced or refined in the gulf finds markets north of the Ohio River where supplies from all markets converge.

About 85 percent of domestic beet sugar is refined in the western, irrigated portions of the Great Plains, the intermountain and Pacific Coast States. The remainder is processed in Minnesota, Iowa, Wisconsin, Ohio, and Michigan which are closer to major markets than sugar processed in the Great Plains and intermountain regions.

In 1958, almost one-half of the sugar produced or refined in the West was marketed in Wisconsin, Illinois, Indiana, Ohio, and Michigan. This area, dominated by the Chicago market, has a heavy concentration of both population and of industries using sugar. Relatively little sugar is produced or refined within the area.

Increases in the quantity of beet sugar marketed relative to total marketings have tended to lower net returns from beet sugar sales relative to New York basis prices (fig. 8). As production of sugar beets has expanded, the shipping distances have increased and the per unit expenditures made for transportation of beet sugar have risen in comparison with what they would have been without increased production of beet sugar. Increased volume also brought about lower refined sugar prices in the Midwest and West relative to those in the East for recent years.

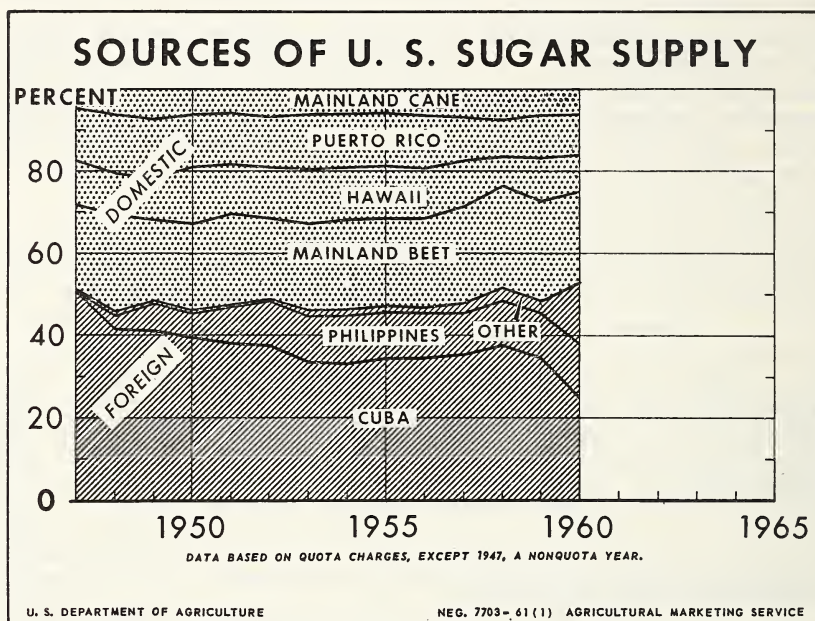


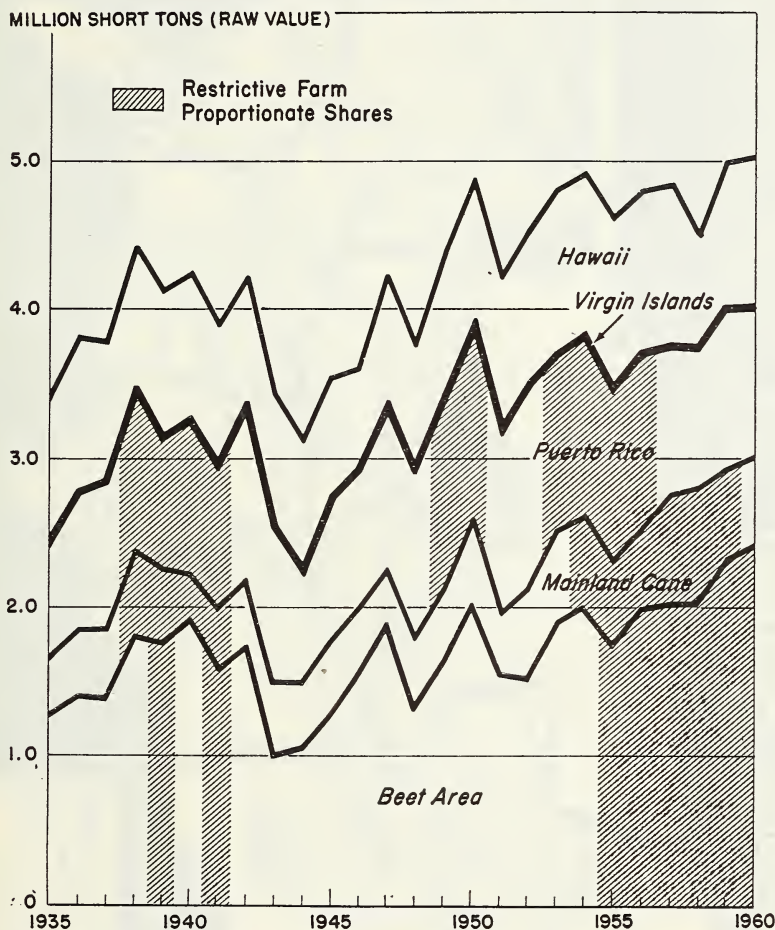
FIGURE 5

The supply patterns outlined above continued into 1960 with minor changes other than the substitution in the last half of 1960 of substantially larger quantities of raw sugar from the Philippines and other foreign countries to offset the loss of imports from Cuba.

The quotas before and after distribution of deficits, 1955-60, together with nonquota purchase allocations in 1960 for various domestic areas and foreign countries, provide another view of supply alignment. (See tables 16-18, pp. 83-84.) Quantities actually supplied were close to the adjusted quotas except that domestic areas, collectively, were about 150,000 tons short in 1958 and 1959 and may be short by a much larger total in 1960.



# **PRODUCTION OF SUGAR IN DOMESTIC AREAS. CROP YEARS 1935-'60 AND YEARS IN WHICH RESTRICTIVE FARM PROPORTIONATE SHARES WERE ESTABLISHED**



Notes: Production in Philippines, 1935-1946 omitted, classified foreign thereafter under Philippine Independence Act of 1946. Production restrictions rescinded before fully effective for 1939 and '41 and in Puerto Rico, 1949 and '50 and Mainland Cane Area for 1959.

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FIGURE 6

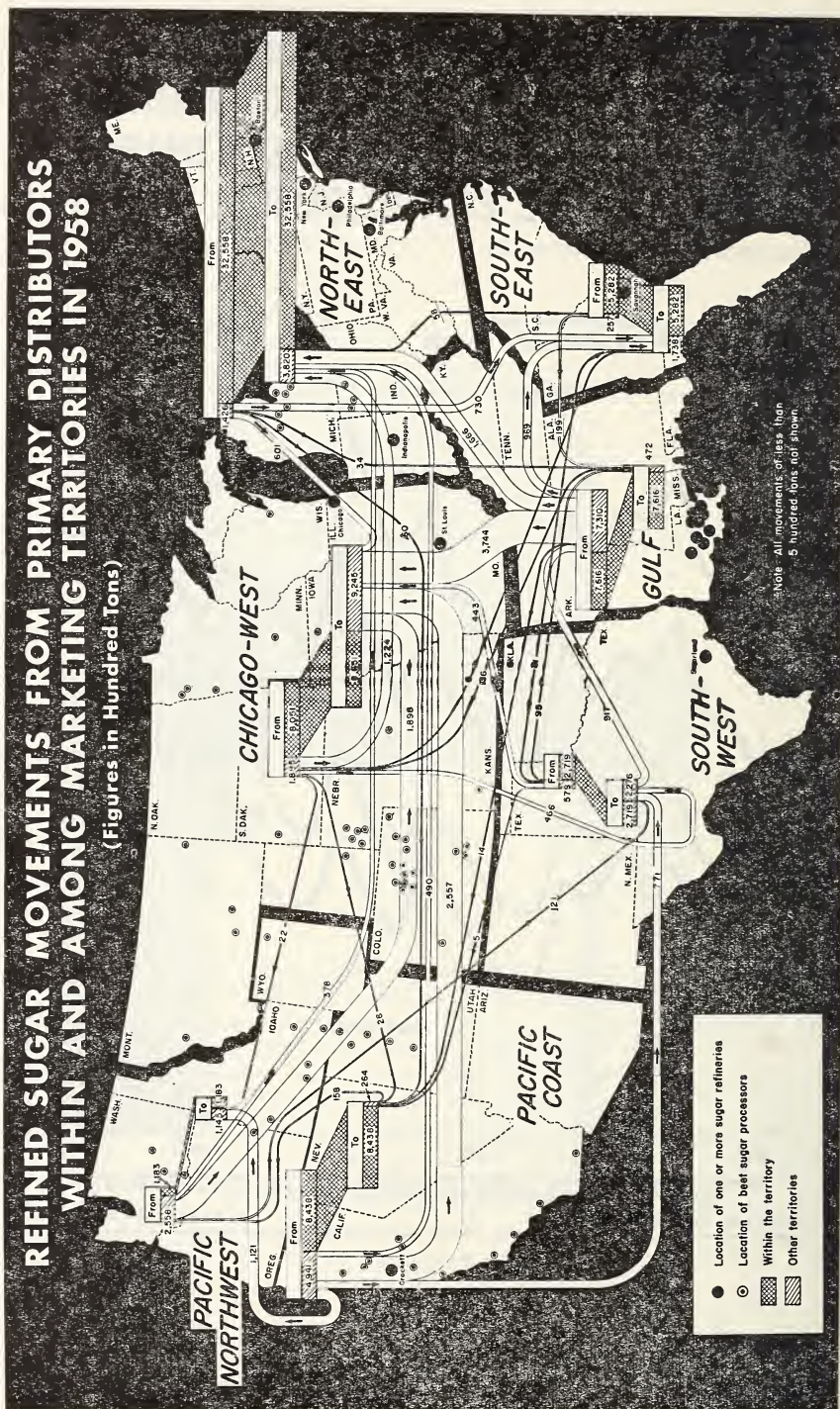
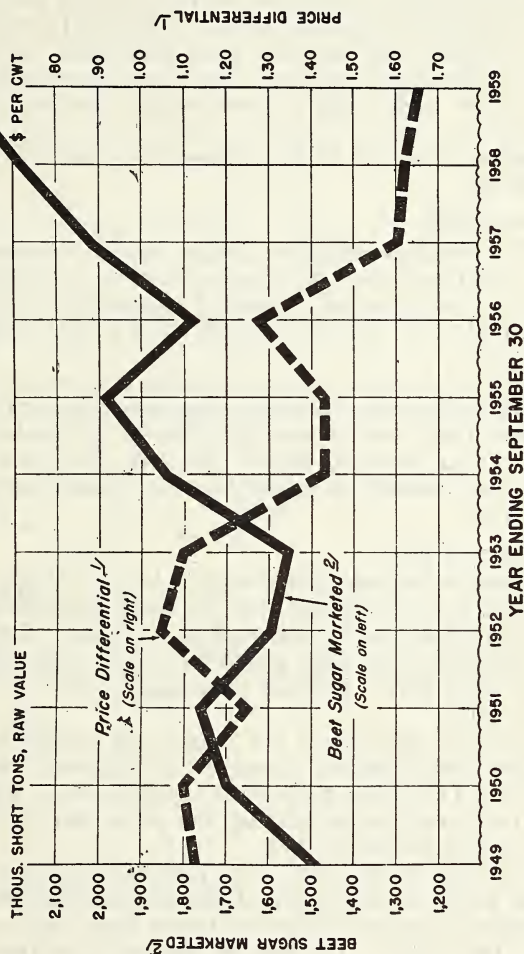


FIGURE 7



# MARKETINGS OF BEET SUGAR AND DIFFERENCES BETWEEN THE NEW YORK NET WHOLESALE PRICE OF REFINED CANE SUGAR AND NET RETURNS FROM BEET SUGAR



1/ Net return from beet sugar below New York net Wholesale price of refined cane sugar.

2/ Beet sugar marketed during marketing periods indicated.

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FIGURE 8



## THE PRICE SITUATION

Three measures of sugar prices are of particular significance in appraising the implications to consumers of sugar and the various segments of the domestic sugar industry. These prices and the interests affected are—

(1) Refined retail prices—household consumers who buy sugar in small packages, taking about one-third of the supply.

(2) Refined wholesale prices—industrial and many institutional consumers; growers and processors of domestic sugar beets; refiners; importers of direct consumption sugar.

(3) Raw sugar prices—growers and processors of sugarcane; refiners.

The general relationship between these three series is shown in figure 9 and table 19.

*Refined retail price*

The U.S. average retail price of sugar applies specifically to 5-pound packages, the retail item of greatest volume. It adequately represents the level and changes in prices to household consumers. About one-third of the U.S. sugar market in 1959 was at retail in consumer-size packages.

Retail prices of sugar increased about 3 percent during the past year. This brought the total increase since 1947-49 to 24 percent—a little more than the increase in price of all foods (fig. 9). Until 1959, retail sugar prices increased less than other food prices. Farm to retail price spreads on sugar have increased less than on other foods (fig. 10).

*Refined wholesale price*

The various wholesale prices applicable to the 65 percent of the supply which industrial and institutional consumers buy are not regularly compiled into representative averages. But it is clear that such an average in late 1960 would have been substantially less than the quoted New York wholesale price which rose about one-fifth from 1947-49 to 1960.

Separate price quotations are issued for various marketing territories. But when simplicity requires a single wholesale price quotation, the New York basis price is commonly used. For example, that price has been used in calculating the price relationships referred to in section 201 of the Sugar Act.

Until the early 1950's, the New York quotations served very well as a single point of reference. Industrial customers bought mostly fine granulated sugar in 100-pound paper bags which was the package to which "basis price" quotations generally referred. In the New York metropolitan area, the cost to such a customer would be the basis price plus a "prepay," to cover cartage. A Chicago buyer generally could merely add the "prepay" (roughly, the freight from New Orleans) to the New York basis price. The delivered prices for cane sugar in Chicago tended to be roughly 50 cents per hundred pounds higher than in New York. In the Chicago area, a customer buying beet sugar usually paid 20 cents per hundred pounds less than for cane sugar.

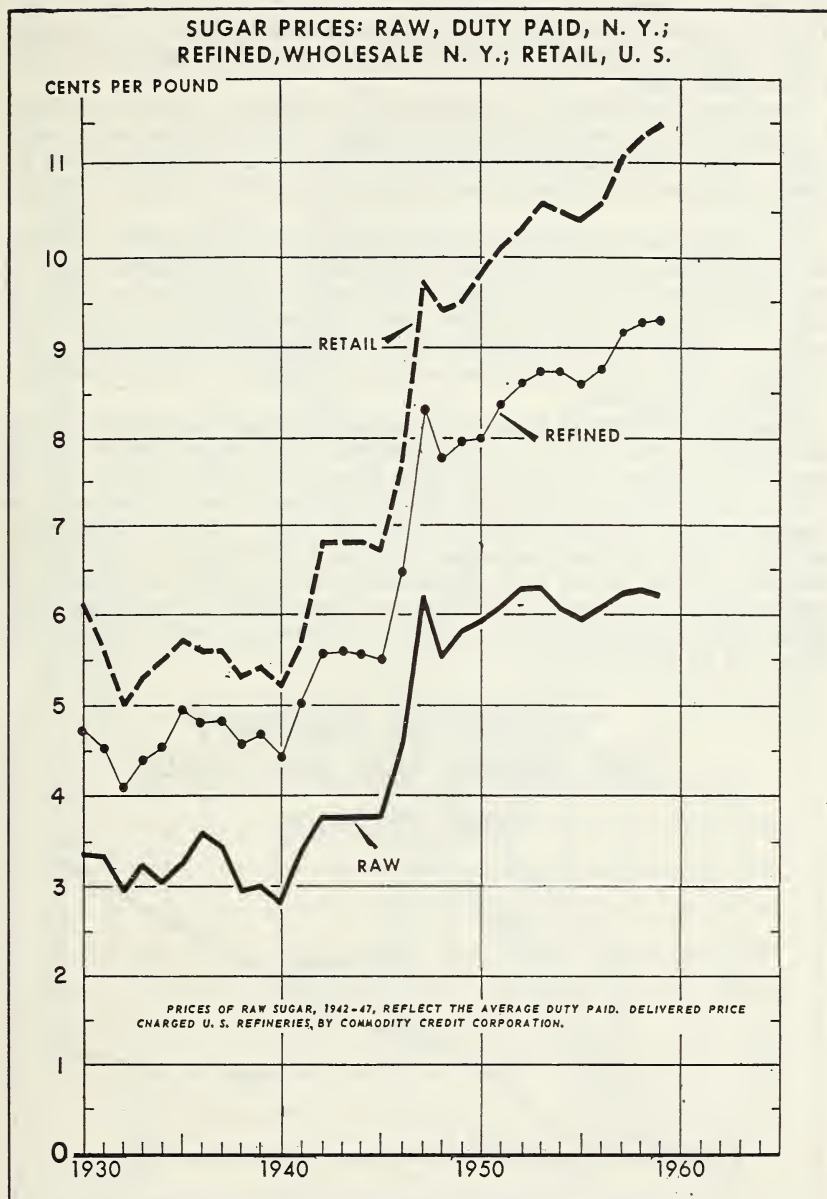


FIGURE 9

In recent years, the patterns of price quotations for various marketing territories have been altered as the result of competition for markets and advances in distribution technology (fig. 11). The New York basis price quotation also is not as representative of the market value as it formerly was because it continues to refer to sugar in 100-pound paper bags.

Increased production of sugar beets has stepped up the competition between beet and cane sugar, particularly in the Midwest and Pacific coast areas. As indicated earlier, this has brought about lower refined sugar prices in these areas relative to those in the East in recent years.

The principal technological factors that are changing the meaning of basis prices are the growth of bulk delivery to industrial users of crystalline and liquid sugar and an increase of prepackaging of retail and institutional items. While the 5-pound package, along with many 1- and 2-pound packages, is the biggest volume retail item, wrapped tablets and individual serving packets are used increasingly in public eating places.

When the 100-pound paper bag was adopted for basis pricing about the end of World War II, the great bulk of all sugar deliveries was made in such bags. By 1960 drastic changes had taken place. Only a little more than one-third of 1959 deliveries of cane sugar were in "basis bags." About one-fourth were in bulk. Almost 40 percent were in consumer-size packages. In the New England and Middle Atlantic States, where New York basis prices apply and almost 40 percent of all cane sugar deliveries are made, delivered prices in bulk, in late 1960, appeared to be as much as 0.5 cent per pound lower than indicated by basis prices.

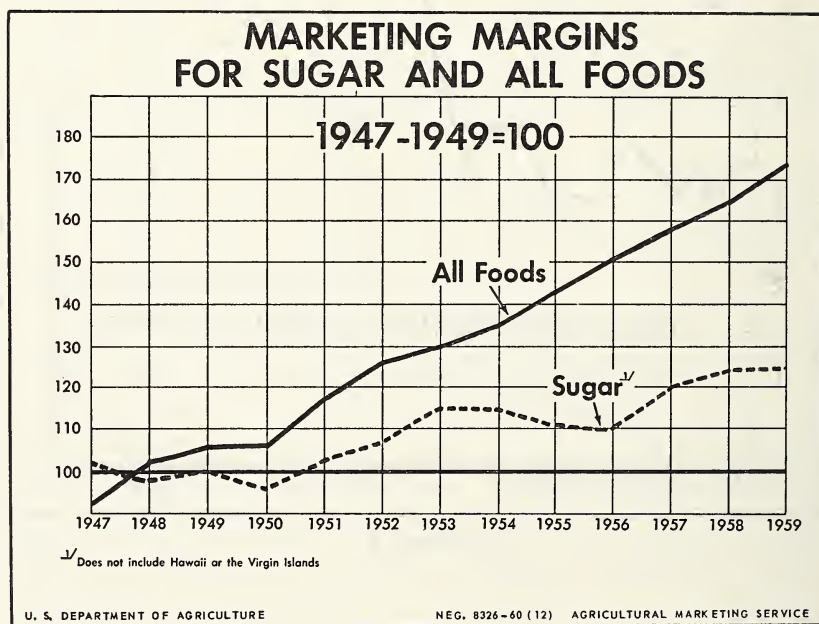


FIGURE 10



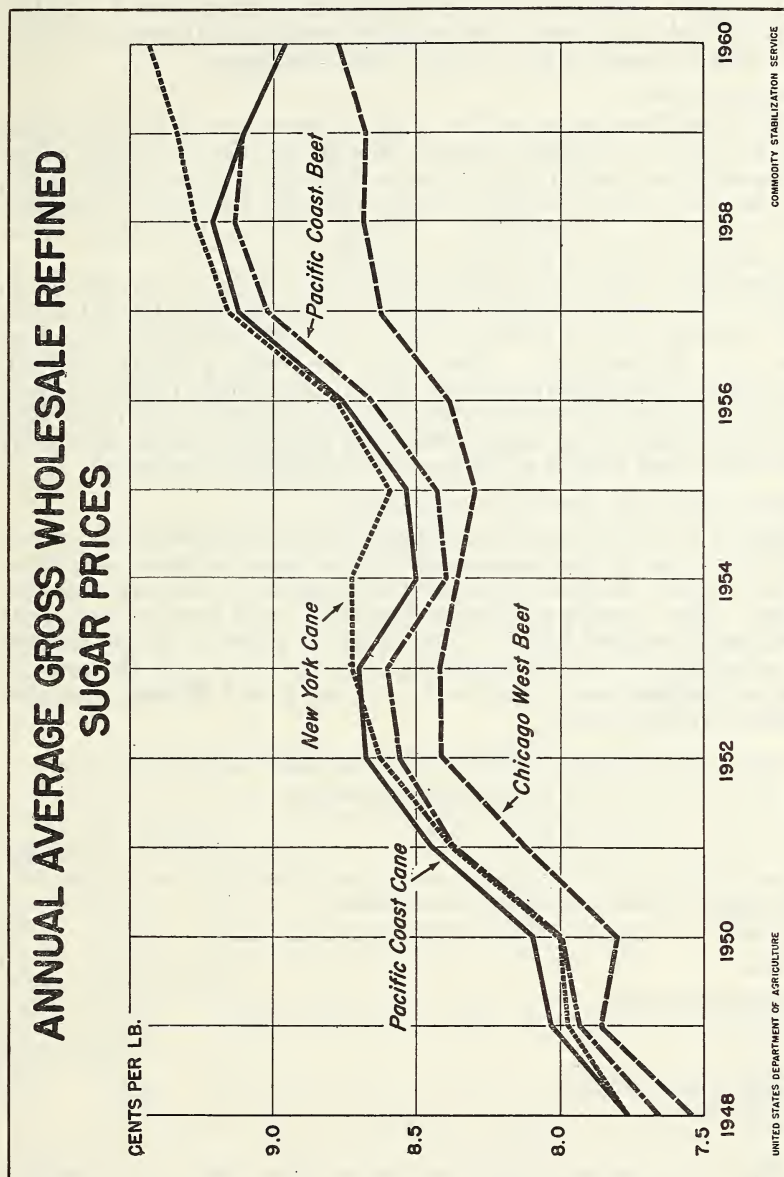


FIGURE 11

Almost 30 percent of 1959 deliveries of beet sugar was in bulk at discounts under the prevailing beet basis prices for the same territories. Most of the beet sugar is sold in territories where applicable basis prices in 1960 were three-fourths of a cent per pound less than the New York cane basis. Only a little more than 20 percent of 1959 beet sugar deliveries was in consumer-size packages.

#### *Raw sugar price*

The price of raw sugar at New York is now about 12 percent higher than in 1947-49. During 1948-60, annual average raw sugar prices duty paid, New York, ranged between 5.56 and 6.30 cents per pound. In 1960, the monthly averages ranged between 5.89 cents in January and 6.59 cents in September. During October-December, prices were slightly lower than during September.

Raw sugar prices are usually quoted on a New York basis as in table 19. These quotations generally apply to deliveries to all Atlantic coast refining centers north of Hatteras (Baltimore, Boston, New York, and Philadelphia). Raw sugar at South Atlantic and gulf ports normally is slightly cheaper than at New York, reflecting lower freight rates from Cuba. The discontinuance of shipments from Cuba and the substitution of sugar from other foreign countries during the last half of 1960 tended to change this relationship somewhat.

#### *Returns to growers, processors, and refiners*

Returns to growers per ton of sugar beets and sugarcane are determined by sugar prices, the quality of the beets or cane, and Sugar Act payments. In some cases, molasses and beet pulp prices are involved. The structure of sugar beet and cane returns and sugar prices are illustrated below. The difference between the prices paid by processors and refiners, including the excise tax and the price to users in carload lots, represents processing and refining margins, freight, and other costs.

#### *Sugar beet and domestic sugarcane returns and sugar prices, November 1960*

[Cents per pound (refined sugar)]

Item	Beets	Cane (domestic)
Growers' returns for sugar crops from market and Government:		
Processors.....	4.27	4.28
Payment.....	.86	.68
Total.....	5.13	4.96
Processors and refiners paid:		
Growers.....	4.27	4.28
Excise tax.....	.54	.54
Total.....	4.81	4.82
Payments by users (Chicago area):		
Carloads in 100-pound bags, net.....	9.16	9.36
5-pound packages.....	11.62	11.62

Average returns to growers per ton of sugar beets in the postwar period have been very stable. Average returns to cane growers have been more variable because of changes in the average sugar content of the cane from crop to crop and in the prices for molasses.

Sugarcane prices for each domestic cane area are geared to average raw sugar prices for a "season"—the period of harvesting, processing, or marketing. Sugar beet prices are geared to the "net returns from sugar sales" made by the processor. Prices for the period 1937-59 for

domestic sugar beets and mainland sugarcane and their relation to parity are shown in table 20.

Average annual Sugar Act payments, which are included in these prices, have ranged between \$2.34 and \$2.41 per ton of sugar beets. Average annual payments per ton of sugarcane have ranged from \$1.11 to \$1.22 on the mainland, \$0.98 to \$1.06 for Hawaii, \$1.59 to \$1.69 for Puerto Rico, and \$1.24 to \$1.46 for the Virgin Islands.

The basic rate of 80 cents per hundred pounds of sugar, raw value, is paid on the first 350 short tons commercially recoverable sugar contained in beets or cane produced on a farm. This rate is reduced progressively to a minimum of 30 cents per hundred pounds on all recoverable sugar produced in excess of 30,000 short tons from beets or cane on a farm.

The 1948-57 average rate of payment was 68 cents per 100 pounds of raw sugar. It ranged from 46 cents in Hawaii, where most of the production is on large farms, to 79 cents in the beet area. Payments in the mainland cane area were 68 cents, while in Puerto Rico they averaged 69 cents during the same period.

Gross income of growers from domestic sugar crops has increased in the postwar period largely as a result of increased production. Growers' gross income from the mainland sugar crops increased from \$156 million in 1947-49 to \$240 million in the 1959-60 crop year, with the largest increase occurring in the income from sugar beets.

Processors and refiners have operated profitably and earnings have been relatively stable. In recent years, earnings of selected beet sugar processors and cane sugar refiners as a percentage of net worth have averaged around 7 to 9 percent. Strictly comparable data are not available for raw sugar cane mills, but it is believed these earnings average somewhat lower. The principal benefit refiners enjoy under this act accrues from the limitation the act places on imports and shipments from domestic offshore areas of sugar in refined form.

#### IV. PROSPECTIVE U.S. REQUIREMENTS FOR SUGAR

Growth in population will continue to be the most important factor in determining sugar requirements in the United States. The population projections employed in this study are, for the most part, the same as those prepared by the Bureau of the Census for the Select Committee on National Water Resources, U.S. Senate. (See table 21, p. 86.)

##### PROJECTED CONDITIONS IN 1965 AND 1970

Projections also have been made of per capita disposable income and the gross national product using the census II-2 projections of population.

Year	Popu- lation <sup>1</sup>	Gross na- tional product	Disposable personal income	Disposable personal in- come per capita
	<i>Millions</i>	<i>Billion 1960 dollars</i>	<i>Billion 1960 dollars</i>	<i>1960 dollars</i>
1960-----	179.9	<sup>2</sup> 503	<sup>2</sup> 353	<sup>2</sup> 1,955
1965-----	195.9	600	420	2,136
1970-----	214.1	700	490	2,281

<sup>1</sup> July 1, 1965 and 1970 projections are census series II-2.

<sup>2</sup> Based on average of 1st 3 quarters.



These projections assume relative stability in the general price level, and no major change in the international situation. The GNP projections are made on the basis of long-term trends in private non-farm production per employee and a relatively full employment rate. The result is a rate of growth about equal to the long-term historical average. The disposable personal income projections assume the 1960 relation between income and GNP with the same tax rates.

#### EFFECT OF INCOME ON SUGAR CONSUMPTION

The extent to which sugar consumption is affected by changes in incomes depends in considerable part on the prevailing income level. In the United States, the demand for sugar, even in the prewar period, was quite inelastic. With the greatly increased income levels in the postwar period, it appears reasonable to suppose that this inelasticity has become greater. Further, the stability in sugar consumption and prices in recent years limits the extent to which the traditional tools of economic analysis can be used successfully to measure the effects of changes in income on consumption. In the various time series analyses that have been made, however, changes in income have been an insignificant factor in accounting for the small year-to-year variations that have taken place in U.S. sugar consumption.

As a matter of fact, neither consumption nor real prices have changed much. Consumer incomes, however, have risen steadily. On the surface, it would appear that income has little effect on sugar consumption, and in fact, it is difficult to demonstrate the contrary with any degree of statistical significance.

Today, with our population well fed and our incomes at a high level, the addition of a few dollars does not greatly affect the demand for sugar. Available data indicates that the total per capita use of sugar in households varies little among the various income groups. The fact that the amount of money spent for food eaten away from home rises with income indicates that high-income groups may be consuming sufficient additional sugar to give income a small positive effect on sugar consumption.

*Consumption of sugar per person in U.S. households of 2 or more persons, by income group, in 1 week, spring 1955<sup>1</sup>*

[In pounds]

Income group <sup>2</sup>	Direct use	Indirect use <sup>3</sup>	Total
Under \$2,000.....	0.99	0.40	1.39
\$2,000 to \$3,000.....	.89	.52	1.41
\$3,000 to \$4,000.....	.86	.62	1.48
\$4,000 to \$5,000.....	.80	.65	1.45
\$5,000 to \$6,000.....	.76	.68	1.44
\$6,000 to \$8,000.....	.76	.73	1.49
\$8,000 to \$10,000.....	.75	.76	1.51
\$10,000 and over.....	.64	.83	1.47

<sup>1</sup> From 1955 Household Food Consumption Survey, Report No. 1.

<sup>2</sup> 1954 money income after income taxes.

<sup>3</sup> Sugar consumed in processed food products.

Much of the demand for sugar is a "derived" demand stemming from consumer purchases of sugar-containing products. Over half of the sugar used today is contained in processed food products of one kind or another, so that the demand for sugar depends, in large

measure, on the demand for hundreds of different sugar-containing products. Consumption of many of these products is greatly affected by consumer income. But increased purchases of sugar in this form, as incomes rise, are largely offset by decreases in the direct use of sugar.

In this connection a recent International Sugar Council study states, "The data demonstrate that in the United States, income and price are no longer decisive \* \* \* factors determining sugar consumption."<sup>3</sup>

There are other factors influencing the use of sugar whose effects are in the direction of decreased per capita use. The importance of these factors is hard to estimate. Listed below are a few of them:

Cutting sugar consumption for weight reduction and prevention of dental cavities.

Increases in use of other sweeteners.

Rise in the number of white-collar jobs in relation to total employment.

#### EFFECT OF PRICE ON SUGAR CONSUMPTION

The stabilizing effects on the sugar market of the administration of the Sugar Act also have obscured the relation between sugar prices and sugar consumption in the postwar period. In the prewar period, consumption of sugar was highly inelastic in relation to price. The substantial rise in income levels in the postwar period suggests that a further decline has probably occurred in the effects on sugar consumption of a change in the relative prices of sugar and other foods.

The relation of the price of sugar to the prices of corn sweeteners or noncaloric sweeteners, however, may be more significant. Substantial developments have occurred in the production of these products and their use has been of growing importance. Much of the upward trend in noncaloric sweeteners has been related to dietary considerations. But in the case of corn sweeteners, as discussed later in the report, the moderate decreases in relative price in recent years have encouraged increases in consumption.

Considerable research is being undertaken to discover new uses for sugar in nonfood industrial products. Although there are several promising potentials in the industrial chemical field, very little sugar is now used for these purposes. While decreases in the price of sugar would enhance these potentials, additional research and adaptation to commercial processes appear necessary before any substantial amounts of sugar are used in nonfood industrial products.

#### SUGAR REQUIREMENTS IN 1965 AND 1970

For these projections, the level of per capita sugar consumption which has prevailed over the past several years was used. In accordance with the preceding discussion, it has been assumed in these projections that changes in prices of sugar and other foods would have little effect on consumption and that the relation of prices of sugar to those of other sweeteners would not change significantly. Population, therefore, is considered to be the determinant of future sugar requirements. The growth in U.S. sugar consumption has been very closely related to the growth in population in the postwar period

<sup>3</sup> "Trends and Forces in World Sugar Consumption," A. Viton and F. Pignalosa, International Sugar Council, London, 1959.

(fig. 12). In contrast to the determinations for continental United States, made annually by the Secretary, these projections are for sugar requirements for all 50 States and Puerto Rico.

Total deliveries for consumption in the U.S. customs area averaged 9 million tons, raw value, in 1955-59. Deliveries per capita were 97 pounds, refined basis (104 pounds raw sugar). This is the consumption figure which is used in projecting future requirements.

Deliveries of sugar for livestock feed and for use in food products exported are not included in these consumption figures or in the projections. Sugar for these purposes is not included in quotas, and is imported at world prices plus the duty. The quantities involved are small, totaling less than 100,000 tons annually in recent years.

In 1965, the projected sugar requirements would be 10.3 million tons, raw value (table 3). For 1970, it was projected at 11.3 million tons.

TABLE 3.—*Deliveries of sugar for consumption in the domestic market, 1955-59 projections 1965 and 1970<sup>1</sup>*

Year	Deliveries for domestic market	Total popula- tion including Armed Forces overseas	Per capita consumption
	<i>Thousand tons (raw value)</i>	<i>Millions</i>	<i>Pounds (refined)</i>
1955.....	8,579	168.2	95.4
1956.....	9,089	171.1	99.3
1957.....	8,922	174.2	95.8
1958.....	9,209	177.1	97.2
1959.....	9,368	180.0	97.3
1965.....	10,330	199.0	97.0
1970.....	11,280	217.3	97.0

<sup>1</sup> Excludes deliveries for livestock feed and exports. This amounted to 34,000 and 57,000 tons, respectively, in 1959.

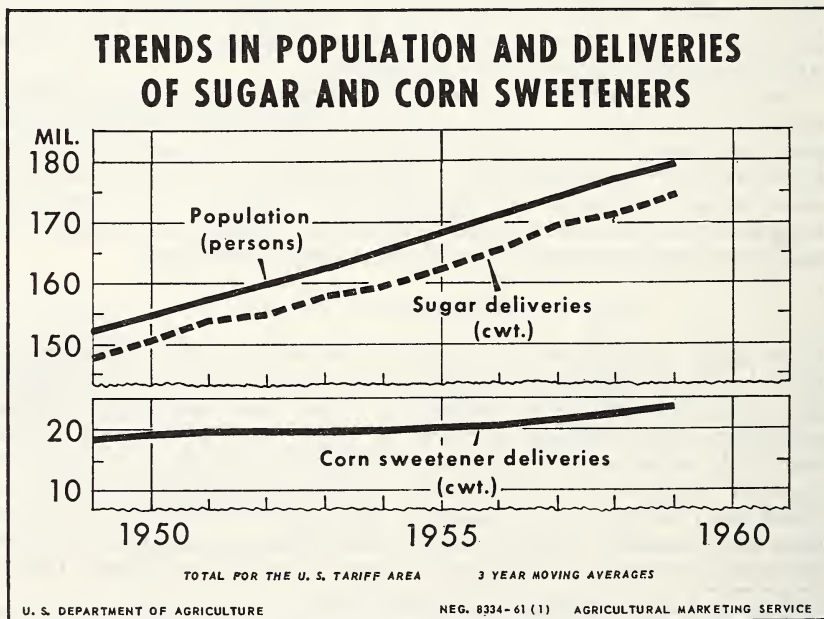


FIGURE 12



Census series II was selected for the projection because it most nearly approximates the growth of our population in recent years. Projected population would be 199 million in 1965 and 217.3 million in 1970. However, the range of census projections for 1965 runs from a low of 194.8 million to a high of 202.3 million. Equivalent sugar requirements are 10.1 million tons, raw value, and 10.5 million tons, respectively. For 1970, the population range is from a low of 206.2 million to a high of 223 million. Corresponding sugar requirements are 10.7 million tons and 11.6 million tons.

While consumption of sugar in recent years has leveled off at around 97 pounds per person, per capita use of other sweeteners has expanded some. These projections assume that present sugar consumption will continue. If, on the other hand, it were assumed that the total sweetener consumption including the sugar equivalent of synthetic sweeteners were to remain constant and the sugar percentage of that total were to decline in line with recent trends, the projected sugar consumption would be lowered somewhat. Using these assumptions and the census population series II projection, consumption would be 10 million tons in 1965 and 10.7 million tons in 1970.

#### SUGAR REQUIREMENTS BY REGIONS AND TYPE OF USER

Prospective changes in use of sugar by type of user and region can be expected to influence geographical differences in prices in the United States. Regional price differences, of course, also will be influenced by the location of sugar production. Projections of sugar use by regions were done on a deliveries basis rather than on a per capita consumption basis. Data are not available on actual consumption by States or regions. Also, it was felt that projections of deliveries present a better picture of the prospective marketing pattern for sugar.

As mentioned earlier, much of the demand for sugar is a "derived" demand. Sugar moves in growing quantities to those areas which produce canned fruits, candy, soft drink sirups, etc. For example, the per capita distribution of sugar in the State of Illinois is well above the U.S. average mainly because of the concentration of the candy industry in Chicago. Candy made there is sold all over the country. Consequently, the share of the total market accounted for by a particular region is not necessarily associated with the growth of population in that region.

Projections were made for 1965 and 1970 of the continental U.S. sugar market by type of product or business of buyer and by regions. They are based on extrapolations of the trends in deliveries over the past 11 years.

If these trends continue, these extrapolations suggest that most of the increase in sugar deliveries may occur in the north-central, southern, and western regions. (See table 22, p. 87.) Presumably, somewhat similar increases in production in these regions might occur without significantly changing current price differentials between these regions and the rest of the United States. Changes in sources of sugar supplies and other factors, however, may affect these projections of regional deliveries.

Industrial uses of sugar now account for slightly over half of total sugar consumption. (See table 23, p. 87.) Continuation of past

trends would raise the proportion in industrial uses to over three-fifths by 1970. Beverages, bakery and confectionery products, ice cream, and preserved foods account for practically all of the industrial uses.

Sugar represents a small but significant element in the retail price of many of these items (table 4). In some manufactured food products, such as canned fruit, candy, and ice cream, some corn sweeteners are also used. Sugar and corn sweeteners are, within limits, interchangeable in these products.

#### COMPETITION BETWEEN SUGAR AND OTHER SWEETENERS

The principal competitors for sugar in the United States are corn sweeteners. Margins between corn sweeteners and sugar have widened in recent years. Prices of cane sugar at New York, for example, have increased about 10 percent since 1955, while prices for corn sirup have increased only about 3 percent. The consumption of corn sweeteners increased 22 percent from 1955 to 1960 reaching a level of 1.2 million tons (dry basis). The percentage, on a dry basis, of total caloric sweetener sales (sugar and corn sweeteners together) has increased from 11.2 percent in 1955 to 12.2 percent in 1960.

Corn sirup accounts for almost two-thirds of the corn sweetener sales, dextrose or refined corn sugar for nearly one-third, and corn sirup solids the remainder. Corn sirup is manufactured by the corn refining or wet-corn milling industry which consists of about seven companies; dextrose is manufactured by two of these companies.

The principal users of corn sirup in the United States are food processing plants of various sorts. The candy industry is by far the most important, although the canning, baking, and the ice cream industries also use considerable quantities of corn sirup. The baking industry takes almost one-half of all dextroses sold in the United States. Nonfood uses are also a relatively important outlet for dextrose.

Ordinarily, prices of both corn sirup and dextrose in the United States have been somewhat lower than the equivalent price of sugar. This is one reason for the use of corn sweeteners in food industries. However, in certain industries, particularly candy, other characteristics of corn sirup may be of equal or greater importance.

In estimating the results of changing the price of sugar in the United States, it is important to consider the effects on the wet-corn milling industry and the probable market reactions of the small number of companies who are the producers of corn sirup and dextrose.

If the price of sugar to consumers were reduced, producers in the wet-corn milling industry probably would have to make somewhat similar reductions in their prices or lose some part of their market. If the price of sugar to consumers in this country were increased, producers in the wet-corn milling industry would benefit from such action. This benefit might take the form of making similar increases in the price of their product, thereby widening the profit margin, or they might appear in the form of increased sales at no increase in prices. The most probable result would seem to be some middle ground between these two extremes.

TABLE 4.—*Value of sugar in selected manufactured sugar-containing food products and their current retail prices*

Item	Unit	Pounds of sugar per unit <sup>1</sup>	Value of sugar at 9.30 cents per pound <sup>2</sup>	Current retail price of item <sup>3</sup>	Value of sugar content as percent of retail price
Soft drinks.....	6 12-ounce bottles.....	0.538	<i>Cents</i> 5.0	<i>Cents</i> 45	11.1
Canned fruit:					
Peaches.....	1 No. 2½ can.....	.208	1.9	33.5	5.7
Fruit cocktail.....	1 No. 303 can.....	.139	1.3	27.0	4.8
Chocolate bar.....	6 1-ounce bars.....	.156	1.5	25.0	4.8
Grape jelly.....	12 ounces.....	.410	3.8	28.9	13.1
Pickles, sweet.....	7½ ounces.....	.164	1.5	26.5	5.7
Ice cream.....	½ gallon.....	.360	3.3	86.4	3.8
Vanilla cookies.....	7 ounces.....	.144	1.3	24.5	5.3
Gelatin dessert.....	4-ounce package.....	.212	2.0	9.3	21.5

<sup>1</sup> From "Conversion Factors and Weights and Measures for Agricultural Commodities and Their Products," PMA, USDA, 1952. Corn sweeteners not included.

<sup>2</sup> Wholesale price, New York, for industrial grade sugar.

<sup>3</sup> Bureau of Labor Statistics.

<sup>4</sup> Estimated.

Several factors might influence what would happen in the wet-corn milling industry if sugar prices are increased. In the short run, the companies might rather easily increase their output up to capacity, which is said to be considerably above present output. For further expansion, additional investments in processing plants would be necessary. Another factor which may be of some significance in the next 2 or 3 years is the possible adoption of certain technological improvements by the wet-corn milling industry which would enable them to produce more and superior products with only slight additional capital investments.

Possible changes in the price of corn, the principal raw material used by the industry, may affect the price of corn sweeteners. The wet-corn milling industry uses only a very small portion of the corn produced in the United States; therefore, their purchases have practically no effect on the price of corn. However, Government programs and other factors might cause significant variations in the price of corn which might have no relation to changes in the price of sugar.

The use of noncaloric sweeteners—saccharin and calcium and sodium cyclamate (sucaryl)—has been increasing in the United States in recent years. The principal reason for this appears to be that these substances impart sweetness to various food products without adding calories. While there seems to be no feasible way of estimating the effect of change in the price of sugar on the use of such sweeteners, the competition appears to be primarily a matter of calories rather than price.

## V. SUGAR PRODUCTION TRENDS AND CAPACITIES IN THE UNITED STATES

Two important developments of the 1950's have changed the competitive position of sugar crops relative to other crops. One is the accelerated development of improved techniques and technology as a result of long-continued research efforts by both industry and Government, and their rapid adoption by growers. This improve-



ment in technology is illustrated by, although not limited to, the rapid reduction in labor requirements for producing sugar crops. Reduction in labor requirements in producing sugarcane and sugar beets has occurred as a result of increased mechanization and increased yields per acre.

In growing sugar beets, man-hours used per ton of sugar produced declined 20 percent from 1948-50 to 1957-59. With the use of adapted monogerm varieties and other innovations now being developed, labor requirements for sugar beets will be reduced still further.

*Labor used per ton of sugar (raw value) produced, 1948-59, by areas <sup>1</sup>*

3-year average	Sugar beet areas	Sugarcane areas			
		Louisiana	Florida	Hawaii	Puerto Rico
	Man-hours per ton of sugar				
1948-50.....	38.4	95.7	50.3	27.9	121.1
1951-53.....	32.7	76.3	28.2	23.5	113.2
1954-56.....	32.3	54.1	24.1	18.6	96.0
1957-59.....	30.6	50.5	22.0	17.4	94.2
	Percent				
Reduction, 1948-50 to 1957-59.....	-20	-47	-56	-36	-22

<sup>1</sup> From Sugar Reports, September 1960, No. 101, p. 38, USDA. Data include all labor utilized in production of sugarcane or sugar beets (including supervision) other than administrative and employee services.

The percentage decrease in amount of labor used for producing sugarcane has been even greater than for sugar beets, although progress in Puerto Rico has been less than in other areas. Man-hours per ton of sugar produced from cane are considerably greater in Louisiana and Puerto Rico than in the sugar beet areas, or in Hawaii and Florida.

The reduction in labor requirements have not necessarily resulted in comparable reductions in total crop input requirements. To a considerable extent, the reduction in labor used has involved the substitution of substantial amounts of machinery for labor. But the reductions in labor requirements do mean that the sugar crops are much less dependent upon large numbers of handworkers than formerly.

The other important factor influencing the position of sugar crops, especially that of sugar beets, has been the relatively more favorable price received for sugar than for other crops, particularly since 1953. Sugar prices have remained essentially at the same level since then, but the prices received by farmers for all farm crops have declined by 15 percent (fig. 13). This has meant a considerable improvement in relative returns from sugar beets, compared with those from many of the crops which are produced in the same areas and on the same farms. The demand for sugar allotment increases within some States has increased sharply as a result, especially in such areas as the Red River Valley of North Dakota and Minnesota and the Columbia Basin area of Washington.

*Sugar beets.*—Harvested acreage of sugar beets in the United States during the last 15 years has fluctuated between 661,000 and 938,000.

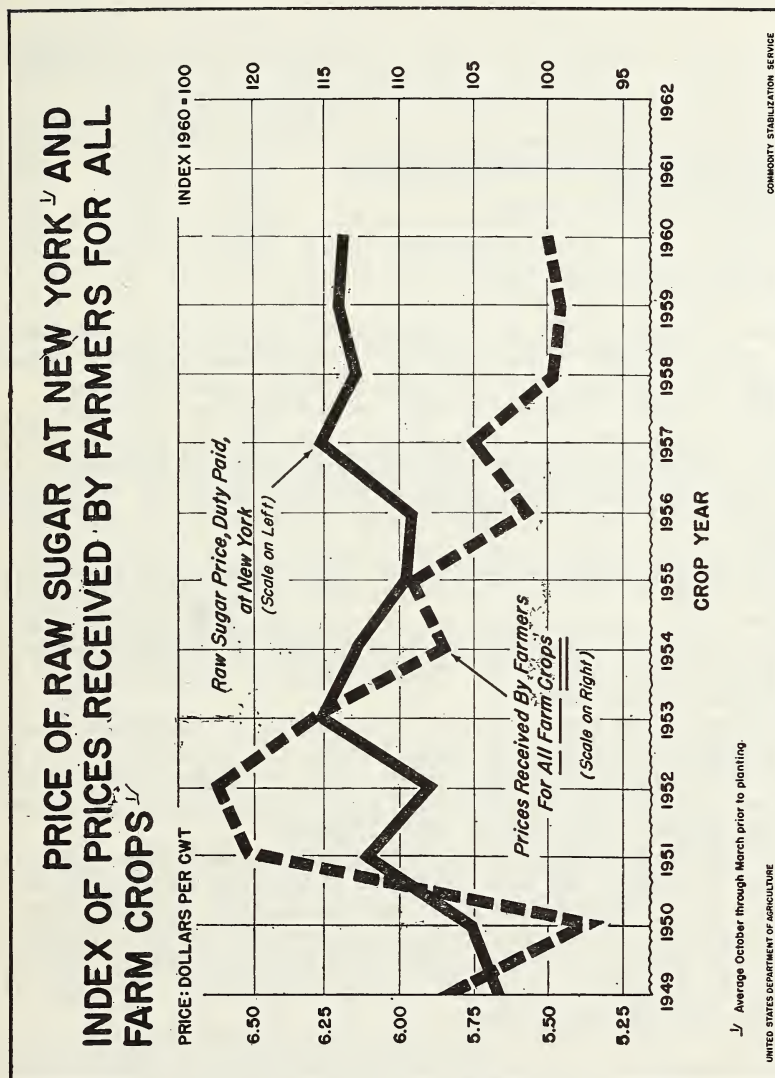


FIGURE 13

Acreage in the 5-year period 1955-59 averaged 60,000 and 80,000 higher than in the two previous 5-year periods. (See table 24, p. 88.)

Between 1948-50 and 1960, striking shifts in planted acreage of sugar beets occurred among the important producing regions, varying from a decline of 25 percent in region 1 to an increase of almost 60 percent in region 2.

Region <sup>1</sup>	Planted acres		Percentage change, 1948-50 to 1960
	1948-50	1960	
	<i>Thousands</i>	<i>Thousands</i>	<i>Percent</i>
1. Ohio, Michigan, Wisconsin, and Illinois.....	134.5	101.1	-24.8
2. Minnesota, Red River Valley of North Dakota, and Iowa.....	74.6	119.0	+59.5
3, 4, 5, and 6. High Plains and intermountain area between 2 on east and 7 and 8 on west.....	391.3	449.9	+15.0
7. Washington, Oregon, and western Idaho.....	74.1	92.5	+24.8
8. California.....	183.3	217.5	+18.7
Total.....	857.8	980.0	+14.2

<sup>1</sup> See table 25 for description of each region.

These shifts generally were toward areas of higher yields or lower unit costs. Similar shifts were going on within regions. These changes were continuations of trends of much longer standing.

Yields increased from an average of 13.6 tons per harvested acre in the 5-year period 1945-49 to 17.2 tons in 1960, an increase of 27 percent. This sharp increase resulted from adoption by farmers of improved varieties, better cultural practices, improved weed and disease control methods, higher rates of fertilizer use, and other factors.

As a result of increased acreages and higher yields, total production of sugar beets in 1960 was over 60 percent higher than in 1945-49. Because sugar extraction rates per ton of beets have remained about constant, annual production of beet sugar has increased proportionally, from an average of 1.4 million tons per year in 1945-49 to 2.3 million tons in 1959.

*Sugarcane.*—Acreage of sugarcane harvested in the United States has changed little during the last 15 years. It is not subject to as much competition from alternative crops as sugar beets, partly because cane is a perennial plant and partly because of the specialized soil and climatic conditions in which it grows.

The important changes in sugarcane culture have been a steady increase in yields in all three areas and a reduction in labor requirements. The yield increases have brought about an increase in production of cane, even though acreages harvested have not changed much. Production of cane in 1960 was 22 percent above the 1945-49 average in Hawaii, 25 percent above in the mainland areas, and 11 percent above in Puerto Rico.

*Number of farms and acreage.*—In the mainland sugar-producing areas, the number of farms producing sugar crops has declined since 1945-49. Since 1955, however, the favorable position of sugar beets has resulted in a small increase in number of farms growing beets as more farmers have sought a proportionate share allotment. Acreage of sugar beets harvested per farm was 20.7 acres in 1945-49, and 35.6 acres in 1959. Less than 5 percent of sugar beet growers had more than 100 planted acres, and these accounted for about 20 percent of total planted acreage.



The number of farms growing sugarcane in Louisiana has declined rather sharply and continuously during each of the last 15 years. Acreage of sugarcane harvested per farm increased from 40 acres in 1945 to 93 acres in 1959. In the mainland sugarcane areas, 2 percent of farms accounted for over 35 percent of the sugarcane harvested in 1957. These farms averaged over 1,400 acres of cane harvested per farm.

In Puerto Rico the number of farms growing sugarcane increased during the late 1940's and early 1950's, but has been declining since 1953. Average acreage per farm increased from 20 in 1953 to 21.5 in 1959. A primary problem in improving efficiency of production of sugarcane in Puerto Rico is the large number of producers with small acreages. Over 60 percent of all growers harvest less than 5 acres of cane annually.

In Hawaii, 27 large plantations account for more than 90 percent of total sugar production. These plantations average about 7,500 acres of sugarcane under cultivation, about half of which is harvested each year. The remainder of the Hawaiian production comes from 1,100 small farms, not all of which harvest cane each year. These farms have an average of 17 acres of sugarcane under cultivation.

#### PROJECTED ACREAGE AND PRODUCTION POTENTIALS BY 1970

The acreage and production of sugar crops that would be produced by about 1970 were projected for three substantially different price situations. Under situation A it was assumed that the gross return (including Sugar Act payments) per ton to the grower would be 25 percent below that of 1959; under situation B gross returns would be at the 1959 level; and under situation C they would be 25 percent above the 1959 level.

The projections are based on these assumptions:

1. That the assumed prices would prevail for a period of years, the assurance of which would permit long-term production planning;
2. That the three price situations would apply to all areas and producers; any effect that regional changes in production might have on sugar prices in various regions are ignored;
3. That sugar crop processing facilities would not limit production, except that potential sugar crop producing areas were not considered if they were isolated and if potential production would be too small for an efficient-sized processing plant;
4. That prices of other crops and the prices paid for labor, machinery, and other inputs would remain at 1959 levels in each area; labor, machinery, and other inputs would be available and adequate for the projected production in each situation;
5. That irrigation projects planned for completion by 1970 would be successfully completed; and
6. That problems of disease control, quality of sugar crops and mechanization would be met by research.

Because some of these conditions might not prevail, the projected expansion of sugar production should be regarded as farmer-producer potentials and not predictions.

Projections of sugar crop production by 1970 under the 3 price situations were prepared by research economists in 32 States and

Puerto Rico, assisted by specialists and technicians of the land-grant colleges and experiment stations, the Agricultural Research Service, the sugar companies, and others. The estimates developed by the State groups of technicians were reviewed and in some cases modified to assure comparability by a committee in the U.S. Department of Agriculture.

In preparing their estimates, the State representatives considered production possibilities for areas now producing sugar crops as well as for areas of new production. The new areas considered were those having suitable soils and climate, such as the northern fringe of the Corn Belt; the Central Plains of New York; Aroostook County, Maine; the Great Plains areas that are now developing well irrigation, and new irrigation areas in the Western States that probably will be developed before 1970. They also considered the areas adjacent to present cane production in Louisiana and Florida. The projections of sugar crop acreages are those that would be sustained over a period of years, consistent with crop rotations that would maintain soil conditions and that would aid in controlling insects, pests, and sugar crop diseases. It should be emphasized that these are projections of likely developments under stated assumptions and are not predictions of what will happen.

*Projected production under situation A.*—With gross receipts per ton 25 percent below 1959, the acreage in sugar crops by 1970 would be roughly 40 percent below that harvested in 1959. (See table 25, p. 89.) The reduction would be about 30 percent for sugar beets, and nearly 50 percent for sugarcane.

All beet-producing regions except region 2 would reduce their acreage. In the Red River Valley, which is a major part of this region, net income per acre from sugar beets under projected price relationships is greater than from grain crops except wheat. Further; wheat acreage is restricted by allotments and potato production is limited by available markets. Thus, under situation A, the acreage of sugar beets in that area would increase by 1970 even with 25 percent lower gross income per ton.

Beet acreage would decrease only about 12 percent in region 7 (Washington, Oregon, and western Idaho). Columbia Basin farmers also have been seeking additional beet acreage allotments. In other beet-producing regions, acreage would decline from about 50 percent in region 8 (California, Arizona, and New Mexico) to as much as 85 percent in region 1 (Michigan, Ohio, Indiana, and Illinois).

Yields in the individual regions were generally projected to increase above current levels. But because of the projected regional shifts in the sugar beet acreages, the U.S. average yield would decline in comparison with 1959. The rise in the proportion of the U.S. beet acreage grown in region 2 from 12 percent in 1959 to 23 percent by 1970 is particularly important in explaining the projected U.S. yields. Yields of beets in region 2 are substantially lower than the U.S. average.

Acreage of sugarcane harvested would decrease about 30 percent in mainland areas. The decrease would be larger in Louisiana than in Florida. Offshore acreage of sugarcane would decrease about 60 percent (offshore includes Hawaii, Puerto Rico, and the Virgin Islands). Producers in Hawaii have high yields and relatively low labor and other input requirements per ton of production but rela-

tively narrow profit margins. Producers in Puerto Rico have relatively high costs per ton because of the smaller acreage per farm and less progress in mechanization and in other improved technology.

Production of sugar beets would decline by 34 percent under situation A compared with production in 1959 (table 5). Production of cane in the mainland areas would decline only 13 percent, but it would be 59 percent less in the offshore areas with the lower price levels. The percentage of total U.S. sugar production originating in the sugar beet areas would increase to 53 percent, compared with 46 percent in 1959 (table 6).

TABLE 5.—*Projected production of sugar beets and sugarcane by 1970, under 3 situations*<sup>1 2</sup>

Area	1959	Projected production by 1970		
		Situation A (prices 25 percent below 1959) <sup>3</sup>	Situation B (1959 prices) <sup>3</sup>	Situation C (prices 25 percent above 1959) <sup>3</sup>
All beet areas.....million tons..	17.0	11.2	33.2	59.5
Mainland cane areas.....do..	6.9	6.0	11.2	17.8
Offshore cane areas.....do..	19.7	8.0	24.4	30.0
All cane areas.....do..	26.6	14.0	35.6	47.8
Percent change from 1959:				
All beet areas.....		-34	+95	+249
Mainland cane areas.....		-13	+63	+160
Offshore cane areas.....		-59	+24	+52
All cane areas.....		-47	+34	+80

<sup>1</sup> Projected production is based on specific assumptions. See text p. 48 for statement of assumptions.

<sup>2</sup> Tonnage delivered to sugar plant. Production of cane and beets are not directly comparable because sugar percent of cane is generally lower.

<sup>3</sup> Price of sugar crop to grower including Government payment. Prices of other crops and costs of production inputs assumed at the 1959 level.

TABLE 6.—*Projected production of sugar by 1970, under 3 situations*<sup>1 2</sup>

Area	1959	Projected production by 1970		
		Situation A (prices 25 percent below 1959) <sup>3</sup>	Situation B (1959 prices) <sup>3</sup>	Situation C (prices 25 percent above 1959) <sup>3</sup>
All beet areas.....million tons..	2.3	1.6	4.7	8.2
Mainland cane areas.....do..	.6	.5	1.0	1.7
Offshore cane areas.....do..	2.1	.9	2.5	3.3
All cane areas.....do..	2.7	1.4	3.5	5.0
All sugar-producing areas.....do..	5.0	3.0	8.2	13.2
Percent beet sugar of total U.S. production.....	46	53	57	62

<sup>1</sup> Projected production is based on specific assumptions. See text p. 48 for statement of these assumptions.

<sup>2</sup> Tons of sugar, raw basis. Conversion rate for beet sugar 93.4 percent.

<sup>3</sup> Price of sugar crop to grower including Government payment. Prices of other crops and costs of production inputs assumed at the 1959 level.

*Projected production under situation B.*—With gross income per ton at 1959 levels and with no acreage restrictions, the acreage of sugar crops by 1970 would be about two-thirds larger than in 1959. The harvested acreage of sugar beets in the United States would more than double and that of sugarcane would increase about 18



percent. The main reason for the relatively large increase in beet acreage is that sugar beets would be more profitable relative to competing crops; also, sugar beet acreage was controlled in 1959. Interest in expanding beet acreage has been stimulated by the increase in yields, mechanization of the harvest and of much of the spring work (thinning and weeding), and the achievement of some success in controlling weeds by herbicides.

The need for a profitable row crop in the rotation is another reason for the interest in beets in some of the new potential areas of production such as the Red River Valley of North Dakota and Minnesota, the High Plains of western Kansas, and the Columbia Basin in Washington. This is also true for other areas in the Western States that are developing irrigation. In the irrigated areas in the Southwest a high-return crop would be welcomed for the cotton land released under the cotton allotment program. In Maine a high-return row crop is needed to replace some of the acreage no longer needed for potatoes.

In southern Minnesota, northern Iowa, Wisconsin, Michigan, and northwest Ohio, sugar beets have been a minor crop because until recently price relationships with competing crops have been unfavorable, and because hand labor requirements have been heavy. These and other difficulties largely would be overcome by 1970 under the conditions assumed, so that with 1959 price relationships sugar beets would then be a more profitable crop than soybeans, for example.

Under situation B, sugar beet acreage would increase in all producing regions. The largest proportionate increases would be in region 2 (Minnesota, Red River Valley of North Dakota, and northern Iowa), in region 4 (Colorado, Kansas, Oklahoma, and New Mexico), and in region 8 (California, Nevada, and Arizona). These areas either have an abundance of good land or they have a potential for irrigation development. More moderate increases are projected in region 3 (southeast Wyoming, South Dakota, Nebraska, and northeast Colorado), in region 5 (western North Dakota, Montana, and western Wyoming), and in region 7 (Washington, Oregon, and western Idaho). But even in these last three regions, the acreage of beets would increase about 50 percent by 1970 under situation B.

Acreage of sugarcane by 1970 under situation B would increase about 40 percent on the mainland (Louisiana and Florida). Florida has a considerable potential for increasing sugarcane production through drainage of land south of Lake Okeechobee. Currently there is intense interest in sugarcane in that area by both processors and cane producers. Both yields and sugar content of cane are relatively high. Louisiana can expand into fringe areas to the north and west of the present main producing areas.

Offshore sugarcane acreage would increase only slightly by 1970 under situation B. With present price levels, these areas are now about up to capacity. They have additional potential with higher price levels.

Under situation B prices, production of sugar beets would be 95 percent higher than production in 1959. Sugarcane production would increase 63 percent in the mainland cane areas and 24 percent in the offshore areas. Total sugarcane production would be 34 percent higher, only one-third the percentage increase in sugar beet production.

Because of these differential responses by areas, sugar beet areas would account for 57 percent of total sugar production under situation B compared with only 46 percent in 1959. Total sugar production would be over 8 million tons, raw basis, or about 65 percent higher than in 1959.

*Projected production under situation C.*—With sugar crop prices per ton to growers 25 percent above 1959 prices and with prices of other crops unchanged, sugar crops would be more attractive than most other crops in each of the producing areas. Net income from sugar beets would then be above the returns from corn in northern Iowa, southern Minnesota and Wisconsin, and more profitable than soybeans. Sugar beets would be more profitable than potatoes or wheat in the Red River Valley of North Dakota, more profitable than potatoes in the Columbia Basin, and about as profitable as cotton in parts of Southwestern United States. Under situation C, growers would produce a maximum acreage of beets in all areas where soils and climate are suitable. With prices for the crop 25 percent higher, sugarcane growers too would find it profitable to expand cane production onto somewhat poorer soils and to intensify production by applying maximum amounts of fertilizer and other inputs.

Under situation C the acreage of sugar beets by 1970 would be nearly four times the 1959 acreage and 80 percent greater than under situation B. The major increases over situation B would come in region 1 (Great Lakes and Northeastern States), in region 2 (eastern North Dakota, Minnesota, and northern Iowa), in region 4 (Colorado, Kansas, Oklahoma, Texas, and New Mexico), and in region 8 (California, Nevada, and Arizona). In the latter region the acreage of beets would exceed a million. The acreage in regions 1 and 2 together would exceed 1.1 million acres, compared with about 200,000 in 1959.

The acreage in cane areas by 1970 under situation C would be more than 60 percent above the 1959 acreage. Mainland acreage (Louisiana and Florida) would be more than double that of 1959; the offshore acreage would be about 20 percent higher. The mainland portion of total cane production would increase from about one-fourth of 1959 production to more than one-third of the projected 1970 production.

The combined harvested acreage of sugar beets and sugarcane by 1970 under situation C would be about 4.8 million acres. This acreage would produce over 13 million tons of sugar, raw equivalent, or  $2\frac{1}{2}$  times as much as in 1959. Beet sugar production would be 62 percent of the total compared with only 46 percent in 1959. As under the other price situations, production of sugar beets would expand more rapidly over 1959 than would production of sugarcane—a 249-percent increase for sugar beets compared with 80 percent for sugarcane. Again, the mainland sugarcane areas would increase more than the offshore cane areas in response to the higher prices assumed for situation C.

*Sweet sorghum as a potential sugar crop.*—While current information indicates sweet sorghum to be a promising sugar crop, additional research is needed to develop high sucrose varieties adapted to the different areas of production, and to develop improved manufacturing techniques. Practical solutions to both problems through research appear probable. However, we have not included possible production from sweet sorghum in our projections of potential sugar production by 1970.



## IMPORTANT PROBLEMS RELATING TO PROJECTIONS

The projections of sugar beet and sugarcane production consider primarily the onfarm price and input conditions, with little or no attention given to processing capacity and regional price problems. These factors could be critical in the degree to which the farm potential may be implemented. Under farm price situation C, of course, enough beets and cane would be produced to make about 20 percent more sugar than 1970 requirements of about 11 million tons as projected in an earlier section of this report. Processing capacity problems differ widely for sugar beets and for sugarcane.

*Beet-sugar factory capacity.*—The level and distribution of beet acreage projected for situations B and C would require large investments for expansion of beet processing facilities, both new factories and enlargement of old ones. For example, the investment required for a complete beet sugar processing facility with capacity to process 60,000 tons of sugar annually would approximate \$12 million. The total value of the annual production of sugar and byproducts would about equal this investment, with the processor retaining about half or \$6 million after paying growers for sugar beets. Interest and depreciation charges on the fixed assets would be about \$1.2 million annually, or about \$1 per hundredweight of refined sugar. Thus, about one-fifth of the total revenue of the processor after deducting the cost of sugar beets would be required to cover depreciation and interest. Although this is higher than for existing factories, it would be partially offset by savings in labor. A modern factory of this kind could process 4,000 tons of sugar beets per day, or 480,000 tons in a 120-day campaign—equivalent to the production from about 27,000 acres of sugar beets at U.S. average yields.

The capacity of present beet processing facilities can be increased in several ways. One of the most promising possibilities for expansion appears to be the storage of thick beet juice during the regular slicing campaign for processing into sugar after the slicing season is completed. This type of expansion probably costs about two-thirds as much per unit of production as a new factory.

*Cane sugar.*—Expansion in raw sugar operations was occurring in Florida in late 1960 despite a great deal of uncertainty with respect to future developments in sugar legislation. With some degree of assurance that increased production could be marketed, substantial investment in new processing facilities seems likely in that State and may also be attracted in other areas as additional acreage is placed in sugarcane.

Construction of an efficient-size mill capable of grinding 3,000 tons of sugarcane daily would require an investment of between 4 and 6 million dollars. Based on length of crop seasons and average recoveries of sugar from cane, a mill of this size would process the following quantities of sugar from the indicated tonnages and acreage of sugarcane in the major producing areas:

Area	Sugar production	Sugarcane ground	Harvested acreage required
	<i>Tons</i>	<i>Tons</i>	<i>Acres</i>
Florida.....	60,000	540,000	14,000
Louisiana.....	20,000	198,000	9,000
Puerto Rico.....	45,000	375,000	11,700
Hawaii.....	90,000	750,000	8,300



Present cane sugar factory capacity includes a cane sugar refining industry geared to an annual output somewhat in excess of the 1959 rate of nearly 6.5 million tons. Much of this refining capacity has been extensively modernized in recent years.

*Sugar prices.*—The farm production projections for situations B and C would involve large increases in the proportion of our sugar originating in the interior beet areas. In situation B beet sugar could provide over 40 percent of projected 1970 requirements, and the beet sugar portion of situation C could be nearly 75 percent of the total required. The expansion of production would take place for the most part within or on the periphery of existing producing areas. Except for production in regions 1 and 2, little of it would be near consuming centers now served by offshore sugar.

As indicated in the discussion of prices in section III, our sugar pricing system has grown out of the historical situation in which sugar first became available at coastal cities, making the price for sugar at any interior point the coastal price plus freight to destination. Also, as discussed in that section, larger proportions of beet sugar in out total supply tend to lower net returns from beet sugar. During the 1950's this depressing effect on net returns of increases in beet sugar marketings was clear even though beet sugar marketings ranged only between 18.8 and 24.5 percent of total sugar marketed. If beet sugar were to be called upon to supply 40 to 75 percent of total sugar distribution, an increase in average sugar crop prices would be necessary to provide the sugar beet returns that are assumed for situation B and even higher relative prices for situation C.

*Production problems.*—Production levels indicated for situations B and C would require that improved production techniques developed through private and public research be available. Research would be needed to obtain greater disease resistance and higher quality of sugar crops, especially for those areas where considerable expansion potentialities have been indicated. The development of adapted monogerm varieties and hybrids together with more effective weed control would result in greater efficiency of production and reduction in labor requirements. Similarly, research on sugarcane to reduce cold temperature hazards, to develop resistance to the ratoon stunt and mosaic virus diseases and injurious insects, and to produce varieties better adapted for mechanization will greatly increase efficiency of production.

Expansion of the sugar beet acreage projected for irrigated areas assumes the successful completion of irrigation development now planned for completion before 1970. Development projects sponsored by the Federal Government and the States would need to be carried out as planned. However, privately developed irrigation for other crops in the Plains States is already proceeding at a faster rate than would be necessary to supply the irrigated land for the projected expansion in sugar beet acreage there.

## VI. AVAILABILITY OF FOREIGN SUGAR FOR THE UNITED STATES

The sugar program developed under our Trade Agreements and Sugar Acts has proved attractive to foreign suppliers. In recent years, the United States has imported almost half of its sugar requirements at an annual value of about \$500 million. It has seldom

experienced difficulty in obtaining foreign sugar needed to supplement domestic production.

The generally higher level of U.S. prices, and a relatively low tariff have been attractive to foreign suppliers. In recent years, prices paid to Cuba, and other foreign suppliers, have averaged about 2 cents per pound above the world level. Under the quota system, import duties were reduced to 0.625 cents per pound for full duty, 0.50 cents for Cuba, and currently 0.05 cents for the Philippines.

#### PROJECTIONS IN THE WORLD SUGAR ECONOMY

Section II of this report discusses recent trends and current levels of world sugar production, consumption, and trade. This section will focus on future conditions.

World production of sugar in the last few years has increased faster than consumption. (See sec. II of this report.) Over the long run, however, production should approximate requirements, including desirable reserves. Controls or restrictions on production are already in effect in many countries and undoubtedly would be adopted in others should stocks continue to build up.

Stocks may rise or fall erratically from year to year because of weather or other factors but barring some international crisis, world stocks in 1965 and 1970 are expected to be little, if any, above present high levels. Therefore, production during 1965 and 1970 is likely to approximate the projected world consumption, as shown in the following table.

Calendar years	Total consumption	Per capita
	<i>Million short tons</i>	<i>Pounds</i>
1959.....	51.5	35.9
1960.....	53.5	36.6
1965.....	64.0	40.2
1970.....	75.0	43.1

Table 26 includes supply and distribution data for nearly all of the sugar-consuming countries of the world. This table indicates a 1959 world sugar consumption of 51.5 million short tons. The 1960 estimate was placed at 53.5 million tons, as shown earlier in this report.

During 1954-58, world sugar consumption increased an average of close to 2 million short tons per year. Our projections indicate an average increase of 2.1 million per year in 1960-65 and 2.2 million in 1965-70.

The projections were based on world population figures of the United Nations, available information regarding per capita consumption levels and trends, and anticipated economic growth in individual countries or areas. In making these projections, it was assumed there would be no major international disturbances or widespread depressions during the next decade.

Per capita consumption is expected to increase fastest in those countries where the level is now very low, particularly those whose economies are beginning to move forward with increasing consumer purchasing potential. Conversely, the rate of increase will likely be less in those industrialized countries which already have reached high



levels, such as the United States where the per capita rate has changed very little during the past decade. However, there are certain industrialized areas, notably Japan and some countries of Western Europe, where a further increase may occur, assuming continued high economic activity.

World trade in sugar has remained relatively stable in recent years. Since world production is increasing, this means that the proportion of production going into international trade is declining. The future pattern of world trade in sugar depends upon a number of contingencies, the most important of which is the course of events in Cuba.

As mentioned earlier in this report, the U.S.S.R. and Communist China have agreed to buy substantial quantities of Cuban sugar over the next 5 years. It cannot be determined at this time what quantities of sugar these countries will actually buy from Cuba and what will be the ultimate use of that purchased. The question arises as to whether such shipments would represent an addition to or simply a diversion in world trade. If additional quantities of imported Cuban sugar were to be consumed in the Communist bloc, world trade would be increased by this amount. On the other hand, if such sugar should be reshipped to other countries, or used to replace exports, this would not necessarily increase overall world trade and could disrupt historical trade patterns and create problems in the administration of the International Sugar Agreement.

#### IMPACT OF CHANGED CUBAN SITUATION

In recent years prior to mid-1960, Cuba supplied one-third of our total sugar requirements. Cuba's proximity and natural advantage for growing sugarcane have made it a logical supplier for the U.S. market since early times. A series of political and economic events resulted in Cuba becoming not only the major source of supply for the United States but the world's largest exporter of sugar.

Following the Spanish-American War, the United States granted Cuba a 20-percent tariff preferential under the Convention of Commercial Reciprocity of 1902. Cuban sugar exports to the United States increased under the stimulus of the preferential treatment and the growing market for sugar in the United States.

By 1913, Cuba had largely displaced other foreign suppliers and provided about half of the total U.S. requirements. Cuba has continued to be the chief foreign supplier to the U.S. market. Shipments varied, however, during the period 1913-33, from a high of 4.5 million short tons in 1922 to a low of 1.6 million in the depression year of 1933.

The Jones-Costigan Act of 1934 and the Sugar Act of 1937 placed primary reliance on quotas based on selected historical performance in the market, with less emphasis on tariffs, for the management of U.S. sugar supplies and prices. Under the successive sugar acts, Cuba was given a preferential opportunity not only to share in supplying the increasing requirements of the U.S. market but also to supply deficits from other areas. Cuba supplied the United States almost 2 million tons per year in the period 1935-39. During World War II and under the Sugar Act of 1948, Cuba for some years supplied greatly increased quantities, partly to offset the loss of Philippine supplies and partly, also, to cover variations in domestic production and increasing needs. After the Philippines and domestic areas were



again able to fill their quotas, the increase in our total requirements enabled Cuba to continue the high level of shipments to the United States. In the 1954-59 period, Cuba supplied an average of 3.1 million tons annually.

These developments were mutually advantageous to Cuba and the United States. Until this time, the United States benefited, not only because of the reciprocal trade provisions which afforded preferential treatment for U.S. products sold to Cuba, but also because Cuba maintained sufficient reserves of sugar to meet increases in U.S. demand and to cover shortfalls in supply from other areas. For years, Cuba was the largest market in Latin America for U.S. agricultural products, notably rice, lard, wheat, and wheat flour. At the same time, Cuba benefited from a relatively stable price, usually well above world levels, and the assurance of a market for a large quantity of sugar.

Now that recent events have disrupted the relationship formerly existing between the United States and Cuba, it is questionable whether Cuba will again become the major source of foreign sugar for this country. Certainly, one prerequisite for reestablishing this position would be the development of a friendly political climate in Cuba. Another important aspect would be the condition of that country's sugar industry. In the meantime, it is necessary to consider the availability of sugar from other sources that may be substituted for sugar heretofore supplied by Cuba.

The level of Cuba's sugar production in the future is problematical. The new regime appears to be placing increased emphasis on agricultural diversification and industrialization programs with a corresponding lack of emphasis on maintenance of the sugar industry. Indications are that the 1961 crop will be only moderately below 1960. However, production was restricted during the past several years.

#### REPUBLIC OF THE PHILIPPINES AS A SOURCE OF SUPPLY FOR THE UNITED STATES

The Republic of the Philippines has been the second largest source of supply for the United States since the early 1900's. In recent years, it has supplied over 10 percent of our total requirements and since July 1960 has been our leading foreign supplier.

Until 1902, Philippine sugar was subject to tariff at full duty. Beginning in that year, the rate applicable to Philippine sugar was reduced 25 percent from the prevailing full-duty rate. From 1909 to 1913, Philippine sugar was allowed free entry up to 300,000 short tons annually, but since this amount was not shipped, all shipments in this period were actually subject to no import duty. From 1913 to 1934 no duties or quantitative quotas applied to Philippine sugar, and shipments increased except for irregular variations during and shortly after World War I. Philippine sugar exports to the United States increased from 102,000 tons in 1913 to almost 1.25 million in 1933.

In 1934, the Philippine Independence Act established a duty-free entry limit of 50,000 long tons refined sugar and 800,000 long tons of raw sugar. The equivalent of the 56,000 short tons for direct consumption and 952,000 short tons total was subsequently assigned as quotas. Philippine sugar production, which had reached 1.5 million

tons in 1934, was adjusted downward before World War II to reflect this quota level. In recent years, the annual quota has been determined to be equivalent to 980,000 short tons, raw value.

From 1934 until the United States entered World War II, the Philippines regularly supplied its duty-free U.S. quota, but did not ship the additional sugar to which they were entitled under sugar legislation and which would have been subject to a substantial duty. Because of the war, practically no Philippine sugar entered the United States from 1942 to 1947. During the next several years the industry was recovering from the war damage, and the Philippines did not supply the full quota.

The Philippines became an independent republic in 1946. The trade agreement signed with the United States in that year, and revised in 1955, provided for the duty-free entry of the Philippine quota until 1956 when it became subject to a duty equal to 5 percent of the duty paid on Cuban sugar. The agreement provided for the duty to increase to 10 percent of the Cuban rate on January 1, 1959, and for further progressive increases at 3-year intervals thereafter. On January 1, 1974, the Cuban rate will apply and on July 4, 1974, the full-duty rate on Philippine sugar will become effective.

The Republic of the Philippines could increase production substantially if the price incentive is adequate. It has the capacity to produce enough to export larger quantities to the United States and provide for substantially increased domestic consumption. Current consumption of centrifugal sugar in the Republic is about 26 pounds per capita, substantially below the world average. A very large proportion of the total centrifugal output has been produced specifically for the U.S. market. Since 1954 the Republic of the Philippines has produced enough sugar to supply its regular quota. In 1960, it supplied an additional 176,000 tons. In recent years, the Republic of the Philippines has shipped relatively little sugar to markets other than the United States. This tends to substantiate the generally accepted observation that the Philippine sugar production is relatively high cost.

#### FUTURE FOREIGN AVAILABILITIES FROM SOURCES OTHER THAN CUBA

Prior to 1960, foreign suppliers, other than Cuba and the Republic of the Philippines, have supplied only relatively small quantities of sugar. Imports from these sources averaged only about 280,000 tons in 1958 and 1959.

If Cuba is not to be a dependable source for approximately one-third of our domestic sugar requirements, where shall we look for these sugar supplies? Production potentials in domestic areas are discussed elsewhere in this report. We are concerned here with export availabilities in foreign countries. Possibilities exist both in countries which have had quotas in the past, and in countries which could have supplied sugar if they had had the opportunity.

In considering export potentials in foreign countries, many factors need to be taken into account. Among these are the type of sugar manufactured, dependability of production, domestic requirements, internal programs and policies, internal transportation and port facilities, and prices at which sugar would be available for export.

Also, changing economic or political situations may greatly affect the export potentials in foreign countries.

To obtain a quantitative measure of the foreign availabilities, available information for individual exporting countries on factors which could affect future production and export capacities and potentials have been reviewed. Projections were made of the foreign availabilities for 1970. This is the same year used in making projections of domestic potentials shown elsewhere in this report.

These projections should not be regarded as estimates, but as our best judgment of the quantities under specific assumptions which would become available at three different situations in regard to the U.S. import price. These price situations are based on the 1959 average for U.S. imports of raw sugar, New York, duty paid, but excluding the excise tax, which was 6.24 cents per pound. The three price situations are:

- (a) Prices 25 percent below the 1959 level.
- (b) No change from the 1959 level.
- (c) Prices 25 percent above the 1959 level.

Other conditions assumed for the purpose of these projections remain the same under each of the price situations outlined above. These other assumptions specifically are:

1. World market price: World market prices for sales to countries other than the United States would continue at about 1959 levels.

2. Price and cost of commodities other than sugar: The profitability of producing sugar relative to other commodities in exporting countries would remain the same as in 1959 except insofar as it might be affected by a change in the price for sugar imported by the United States.

3. Continued supplies to traditional export customers and domestic consumers: Each country would continue to supply its traditional non-U.S. customers, and would provide for growing consumption within its own borders, before making sugar available for export to the United States.

4. Movement of Cuban sugar: No Cuban sugar would come to the United States, directly or indirectly, but Cuba would continue to supply its traditional non-U.S. customers, with only moderate growth in such exports. To the extent Cuba may gain new or enlarged outlets to Communist bloc countries, it was assumed that sugar sold to such countries would be absorbed within the bloc.

5. Access to U.S. market: Each potential foreign supplier would have access to the U.S. market. Also, no major international disturbance and changes in trade policies affecting sugar would occur.

6. Sugar mill capacity: Present and already-planned facilities, together with such additions as would normally occur with a growing export market, would be adequate for the quantities projected under price assumptions A and B. The enhanced price incentive under assumption C was assumed to be sufficient to bring about the further expansion and construction of facilities necessary to attain the larger quantities projected under that assumption.



The countries listed in table 7 are substantially the same as those identified as exporters in table 26, arranged alphabetically within groups. East European countries have been omitted on the assumption of political and geographic inaccessibility, as well as the fact that the import duty of 1.875 cents per pound, which would apply to such countries, is substantially higher than the rate of 0.625 cents per pound which applies to all free world countries other than Cuba and the Philippines.

The grouping of the countries and the order of their discussion in the text were established for convenience only, and no implication of preference should be inferred.

For all countries combined, the projections indicate that by 1970, some 6.3 million tons would be available under price assumption A, about 8.7 million under B, and 11 million tons under C.

Countries shown in the first group in table 7 include most of the 15 countries, other than Cuba, which had U.S. quotas in 1959. The 1959 quotas for these 15 countries totaled slightly less than 1.3 million tons. Our projections for these countries indicate that their combined availabilities by 1970 under the lower, unchanged and higher price assumptions would be approximately 3 million, 4 million, and 4.8 million tons, respectively.<sup>4</sup> In 1958 and 1959, all foreign countries, including Cuba, supplied the United States with an average of about 4.5 million tons annually. If the United States were to continue to require as much foreign sugar in the future as in the recent past, and if Cuba is not a supplier, this group of quota-holding countries would not be able to supply such a quantity under price assumptions A and B, but would be able to do so under the higher assumption C.

It should be pointed out that the projections for the Dominican Republic were made on exactly the same basis as for other countries even though the non-quota-allocation sugar apportioned to that country is now subject to an entry fee of 2.25 cents per pound.

If the U.S. sugar market were opened to nonquota countries also, large additional quantities of sugar would be available. For nonquota Central and South American countries, the projections for the three different price assumptions indicate that sugar available to the United States by 1970 would be 1.7 million, 2.3 million, and 2.8 million tons, respectively. Brazil is, of course, the country in that area which has the largest potential for expansion. Given adequate incentive, that country has the potential capacity to become a leading supplier for the United States.

Large additional quantities of sugar also would be available from other areas. The third group of countries in table 7 are primarily suppliers of sugar to the British Commonwealth. Under the three price situations, this group would have available for the United States by 1970 about 1.3 million, 2 million, and 2.7 million tons, respectively.<sup>5</sup> It should be emphasized that these projected export availabilities to the United States are in addition to projected quantities which these countries would export to Commonwealth and other traditional customers. Countries in the Commonwealth group with major potentials appear to be Australia, the Union of South Africa, and the

<sup>4</sup> Including quantities shown for Belgium and the Netherlands listed with the West European group, and for British Guiana, shown with the Commonwealth group.

<sup>5</sup> These totals exclude projections for British Guiana which has had a small U.S. quota.

Federation of the West Indies. India's future export potential will depend in considerable measure upon the level of per capita consumption in that country.

Also shown in table 7 are projections for certain countries in West Europe and in Asia. Largest potentials in those two areas are indicated to be in France—considered in conjunction with its oversea territories and dependencies—and in Turkey.

TABLE 7.—*Centrifugal sugar: Projections of foreign supplies available to the United States, under various price assumptions, 1970<sup>1 2</sup>*

[1,000 short tons, raw value]

Country	A (25 percent lower)	B (no change)	C (25 percent higher)
<b>U.S. quota holders:<sup>3</sup></b>			
Costa Rica.....	30	40	45
Dominican Republic.....	500	600	700
Haiti.....	10	30	35
Mexico.....	600	700	900
Nicaragua.....	35	55	65
Panama.....	10	15	20
Peru.....	300	350	450
Philippines.....	1,000	1,500	1,600
Taiwan.....	350	450	550
<b>Total, U.S. quota holders.....</b>	<b>2,835</b>	<b>3,740</b>	<b>4,365</b>
<b>Central and South America:</b>			
Argentina.....	110	250	325
Brazil.....	1,500	1,900	2,300
Colombia.....	0	15	20
Ecuador.....	50	60	70
El Salvador.....	6	18	20
Guatemala.....	15	25	30
Paraguay.....	10	20	25
<b>Total, Central and South America.....</b>	<b>1,691</b>	<b>2,288</b>	<b>2,790</b>
<b>Commonwealth:</b>			
Australia.....	500	700	1,000
Fiji.....	100	200	300
British Guiana.....	150	200	250
British Honduras.....	20	30	35
Federation of West Indies.....	225	300	400
India.....	100	200	300
Mauritius.....	175	200	225
Union of South Africa.....	225	325	425
<b>Total, Commonwealth.....</b>	<b>1,495</b>	<b>2,155</b>	<b>2,935</b>
<b>West Europe:</b>			
Belgium.....	15	50	75
Denmark.....	35	60	70
France and territories.....	75	200	300
Germany, West.....	65	75	100
Ireland.....	10	10	15
Italy.....	0	0	75
Netherlands.....	35	60	70
<b>Total, West Europe.....</b>	<b>235</b>	<b>455</b>	<b>705</b>
<b>Other:</b>			
Indonesia.....	0	0	100
Turkey.....	50	100	125
<b>Total, other.....</b>	<b>50</b>	<b>100</b>	<b>225</b>
<b>Grand total.....</b>	<b>6,306</b>	<b>8,738</b>	<b>11,020</b>

<sup>1</sup> Projections of foreign supplies available to United States are based on specific assumptions. See text p. 62 for statement of assumptions.

<sup>2</sup> Price assumptions relate to U.S. import prices in relation to 1959 levels.

<sup>3</sup> Excludes United Kingdom, Canada, and Hong Kong. British Guiana, Belgium, and the Netherlands, which also have small U.S. quotas, are shown in other groupings.

Source: Sugar and Tropical Products Branch, FAS, USDA, Dec. 15, 1960.

The projections presented in table 7 indicate the effect of the particular price assumptions made in determining the aggregate potential of these 33 countries. Under all three price assumptions, however, the sugar available to the United States by 1970, over and above the growing domestic needs and traditional non-U.S. trade requirements of these countries, would be far in excess of the approximate 4.5 million tons of sugar which the United States imported in 1959.

It should be noted that some of the assumptions above, upon which these projections are based, are such that they tend to result in minimum figures for the amounts of sugar which would be available to the United States. For example, if contrary to assumption No. 3, some of the exporting countries were to divert sugar from their traditional customers in favor of the more attractive prices offered by the United States, availabilities to the United States would be increased.

We recognize that Cuba might ship considerably more sugar to non-U.S. free world markets than has been assumed. Should this happen, free world supplies, as well as foreign availabilities for the United States, would tend to increase. We also have assumed that Cuban sugar shipped to the communistic bloc would remain in the bloc rather than be diverted to free world supplies. Again, we recognize that part of such shipments might eventually be diverted to free world markets which would increase foreign availabilities for the United States.

In view of the nature of our assumptions, we believe our projections represent minimum foreign availabilities which would be available for the United States by 1970 under the three assumed price situations.

## VII. ALTERNATIVE APPROACHES IN ACHIEVING OUR NATIONAL SUGAR POLICY

The purpose in this section is to provide a framework of the major considerations whereby Congress can make comparisons and arrive at an overall policy that best fits longtime future objectives.

Section I discusses the general objectives of U.S. sugar policy since 1934. Appraisal of various alternatives can best be made when considered in light of the specific effect one desires to achieve.

The Sugar Act now uses a combination of approaches to achieve its objectives. The new act may also need to involve more than one of the alternative methods to meet the various goals of any new sugar policy.

The major alternatives would appear to be: free trade, tariff, quota system, and direct payment. As the House committee indicates, the current Cuban situation makes it desirable to review past policy objectives in light of the new circumstances and the specific methods used to achieve these objectives be modified to fit the new conditions. It seems apparent from projections in the earlier sections that world sugar production has been developed to the point that obtaining of adequate U.S. supplies even without Cuba would not appear to be difficult.

Let us now briefly review the important impact each approach independently would have. It is assumed that Cuban sugar will not be available to U.S. markets. No attempt has been made to list the considerations related to each approach in order of importance, nor to give equal weight to each consideration.



## FREE TRADE

The world sugar situation is such that, from a supply standpoint, we could go to a free trade policy, but not without substantial repercussions. The following considerations should be kept in mind:

1. There could be some irregularity of supplies, particularly in periods of crisis.
2. Price of sugar in the United States would drop to a lower level, would be somewhat variable, and in times of crisis might move to a high level.
3. A substantial part of the domestic industry would be eliminated.
4. Over the long run, production of sugar would increasingly tend to concentrate in the areas of lowest cost production.
5. Sugar imports would increase, giving all foreign producers an increased opportunity to sell in this market, thereby increasing our export opportunities in other commodities but only to the extent that increased imports more than compensate for the lower price.
6. This plan would enhance U.S. leadership in the liberalization of trade on a multilateral nondiscriminatory basis.
7. Special consideration would have to be given with the Philippines in view of our special relations with that country.
8. Problems of administering the Sugar Act would be eliminated.
9. No revenue would accrue to Treasury through import duty or excise tax.

## QUOTA SYSTEM

Since 1934, the basic approach to achieving U.S. sugar policy goals has been the quota system. By allocating quotas to both domestic and foreign producers, the total supply of sugar available is carefully controlled. Under the quota system, the United States has had fully adequate supplies under all but the most extreme wartime conditions. A quota system represents the highest degree of control among the alternative approaches.

Important considerations here are:

1. Adequate supplies of sugar are best assured under this approach.
2. Prices can be kept relatively stable.
3. U.S. raw sugar prices have been above world free sugar prices most of the time.
4. Under quotas, domestic sugar prices can be maintained at a desired level.
5. The balance between foreign imports and domestic marketings can also be maintained although subject to the difficulties enumerated in point 10.
6. A predetermined quota gives both the domestic and foreign industry a sound basis for careful production planning.
7. Precise scheduling of raw sugar deliveries to east coast and gulf refineries has kept domestic industry storage and handling costs down.

8. Domestic quotas tend to be assigned on an historical production data basis which tends to retard development of new production areas.

9. United States has been an attractive market for sugar. The 15 countries which have quotas want increases. Many other sugar producing countries also want to be included.

10. United States has the delicate job of deciding the proportion of U.S. requirements to be produced domestically and who our foreign suppliers shall be, as well as the quota each receives. The potential production capacity study reported in sections V and VI points up the real dilemma the United States faces if the quota approach is continued. Section V reflects the strong demand for increased domestic quotas in the next decade at current level of returns. The choice lies between lowering the price, sure to be resisted; tighter domestic controls with little opportunity for new areas to develop in sugar production; or a greatly expanded domestic allotment which would complicate U.S. leadership in the liberalization of trade on a multilateral nondiscriminatory basis.

The current Cuban situation complicates continuance of the quota approach. If Cuba's quota of about 3 million tons were to be allocated to other suppliers—either foreign or domestic—it would be extremely difficult for her to reenter this market with any sizeable quota if and when the political climate in that country makes reentry into our market practical.

A global quota is a possible alternative to our present foreign quota allocation system. The United States would merely determine the total quantity of foreign sugar needed and this would be filled on a "first-come" basis. The quota premium would be absorbed by the Government. Thus, the foreign exporters would receive the "world free market" price. This alternative would have the advantages of: being more nearly in line with U.S. foreign trade policy; not being dependent on any specific countries for our supplies; permitting new foreign production areas to develop. It would have a disadvantage of the possibility of a few countries eventually emerging as dominant suppliers, leaving the United States vulnerable to another "Cuban" type development.

#### TARIFF

The United States relied on a tariff system for sugar for nearly a century and a half prior to 1934. In appraising the tariff approach several considerations need to be kept in mind:

1. There would be some irregularity of supply to United States in times of crisis.
2. Sugar prices in the United States would fluctuate with world prices.
3. The domestic industry would be protected, with the level of the tariff only roughly determining the proportion of total domestic requirements to be supplied by domestic producers.
4. There would be no restrictions on where the domestic sugar is produced or where the foreign supply originates.

5. A tariff high enough to maintain domestic producer incomes at 1959 prices including payments would result in substantially increased domestic production.

6. It is extremely difficult to set a tariff that would maintain past proportions of domestic and foreign supply.

7. Unless a special differential in tariff on refined sugar is provided the refining industry will suffer severe competition.

8. The tariff approach would provide for nondiscriminatory treatment to all friendly countries, except for the Philippine preference, which might be interested in exporting sugar to the United States.

9. There would be no problem in Cuba resuming shipments to the United States if and when friendly trade relations are re-established.

10. The Treasury would benefit from tariff collections.

11. A tariff high enough to protect the domestic industry at current levels would be inconsistent with our long-time policies and might complicate our GATT negotiations.

A flexible tariff policy would provide additional features. Here the Secretary of Agriculture or a sugar board would be given the authority to estimate annual sugar consumption requirements, domestic production or availability, and import needs. The tariff would be set so as to permit the entry of only the import requirements. If imports came in too fast, the tariff would be raised and vice versa. This scheme, of necessity, would require a determination of the general price level of sugar desired under the prevailing supply and demand conditions. Foreign suppliers, and to some extent, U.S. refineries, would have difficulty in marketing and processing operations.

Four examples have been developed to illustrate the effects of the tariff, direct payment, and two combination approaches. These examples are all based on the following assumptions:

(a) The world free market sugar prices are assumed at approximately the 1959 level;

(b) Changes in the level of U.S. import needs shown in the various examples are assumed not to affect the world price;

(c) Changes in raw sugar prices are assumed to be fully reflected in the price to consumers and producers; and

(d) It is assumed that production will be in line with the U.S. capacity projections.

No specific recognition is given to the Philippine tariff preference in calculating tariff revenues in these examples.

An illustration of the effect of a tariff system to maintain producer return per unit at 1959 levels is shown below. A tariff of 3.5 cents per pound of raw sugar is used. This would be 1.5 cents higher tariff than the Smoot-Hawley tariff on sugar from Cuba.

This illustration would bring \$231 million to the Treasury at the 1970 level of imports contrasted with \$71 million treasury gain in 1959. This is largely a result of discontinuance of the quota premium to foreign suppliers. This approach would result in by far the largest net gain to the Treasury.

A tariff of this level, without quota controls, would have the effect of increasing domestic production by 1970 to 70 percent of U.S. requirements, reducing imports to 30 percent.



*Illustration of a tariff approach to maintain producer returns per unit*

	1959	Projected 1970
Cents per pound		
Producer returns:		
Raw sugar "world free market" delivered New York (including freight).....	3.43	3.50
Tariff.....	1.50	3.50
Quota premium.....	2.32	
Raw sugar delivered New York duty paid.....	6.25	7.00
Direct payment to sugar crop producer.....	.70	
Gross returns domestic producer.....	6.95	7.00
Wholesale price (raw basis):		
Raw sugar delivered New York, duty paid.....	6.25	7.00
Excise tax.....	.50	
Raw sugar price plus excise tax.....	6.75	7.00
Million dollars		
Government revenue and payment:		
Excise tax.....	93	
Tariff.....	45	231
Total.....	138	231
Payments to producer.....	67	
Million tons, raw value		
Sources of supply:		
Domestic marketings.....	4.8	8.0
Import needs.....	4.5	3.3

<sup>1</sup> Cuba rate—full duty rate is 0.625 cents.

## DIRECT PAYMENT APPROACH

Under the direct payment approach domestic sugar prices would move with world-free-market prices—domestic producers would receive direct payments to bring their income to the desired level. If an excise tax was used to finance the cost of the deficiency payments, U.S. sugar prices would be above world-free-market prices. This program would be paid for out of the Treasury.

Considerations in a direct payment approach include:

1. Domestic portion of the supply could be fairly stable but foreign import prices might be subject to considerable fluctuation.
2. Consumer prices would be lower under this approach most of the time.
3. Domestic growers would be assured of specified levels of returns by direct payments.
4. Deficiency payments high enough to maintain domestic grower returns 1959 levels would substantially increase domestic production.
5. Individual regulation would be minimized and production would tend to shift to low-cost areas.
6. It has a high degree of administrative flexibility.
7. Foreign producers would gain no advantage from selling to United States but all would be treated alike.

Some of the implications of these considerations are indicated in the illustration given below (see assumptions, p. 68):

The illustration uses a direct payment of 3.5 cents to maintain producer returns. An excise tax of 2.5 cents is used to finance payments. An increase in payment is substituted for price in this example. No differential in rates as between small and large producers of sugar crops is assumed with respect to the increased payment.

The principal difference between the tariff illustration and this one is taxpayers gain by Treasury revenue under tariff and consumers by lower price under direct payment. A raw sugar price (including excise tax) of 6. cents in 1959 compared to 6.75 cents per pound would amount to \$170 million savings to consumers, assuming no changes in processing and marketing margins.

Producer payments of more than one-half billion dollars would be financed by excise tax. Treasury net gain of \$71 million in 1959 would be lost.

Foreign suppliers would be affected in the same manner as in tariff illustration.

*Illustration of a direct-payments approach to maintain producer prices*

	1959	Projected 1970
	Cents per pound	
Producer returns		
Raw sugar, world free market, delivered New York (including freight).....	3.43	3.50
Tariff.....	1.50	-----
Quota premium.....	2.32	-----
Raw sugar delivered New York duty paid.....	6.25	3.50
Direct payment to sugar crop producer.....	.70	3.50
Gross returns to domestic producer.....	6.95	7.00
Wholesale price (raw basis)		
Raw sugar delivered New York duty paid.....	6.25	3.50
Excise tax.....	.50	2.50
Raw sugar price plus excise tax.....	6.75	6.00
	Million dollars	
Government revenue and payments		
Excise tax.....	93	565
Tariff.....	45	-----
Total.....	138	565
Payments to producers.....	67	560
	Million tons, raw value	
Sources of supplies		
Domestic marketings.....	4.8	8.0
Import needs.....	4.5	3.3

<sup>1</sup> From Cuba—full duty rate is 0.625 cents.

### COMBINATION OF APPROACHES

The present sugar program relies principally on quotas, but tariff, excise tax, and direct payments to producers are also used to achieve certain of its policy objectives.

Innumerable alternative combinations can be devised to achieve a wide range of possible policy goals. For example, if greater reliance is to be placed on domestic production—a quota system could achieve this; so could a high tariff; a direct payment; a global import quota or import quota combined with direct payments to domestic producers would also.

If lower prices is a major objective—the free market approach could achieve it. To make lower price and protection to the domestic industry compatible, a duty-free entry could be combined with direct payments to producers.

If the present quota system is followed—the allocation of Cuba's 3 million tons to other producers, either foreign or domestic will leave none for Cuba when and if that country is in a position to reestablish friendly trade relations with the United States. If the United States desires to continue its present program this could be accomplished by merely adding the free market feature for Cuba's portion, buying this amount at the world price and reselling to the sugar trade at the domestic price until such time as the Cuban situation changed.

These examples are used merely to point up the complexities of the current problem and to illustrate that combinations of approaches may be used to achieve two or more goals simultaneously.

As Congress decides on the objectives to be achieved by its new sugar policy, it may add new objectives, delete some of the present ones, and finally decide on those objectives to receive preferential treatment.

Two illustrative combinations (see assumptions on p. 68), are developed, not as proposals by the study group, but for the purpose of illustrating the probable effect. Of course, there are literally hundreds of combinations that might be considered. The first involves the use of a tariff and direct payments.

This illustration uses a combination of 1.5-cent tariff, 0.5-cent excise tax, and 1.5-cent direct payment. By reducing producer returns about 0.5-cent pound it also approximately holds domestic production (1970) at about 60 percent of market requirements (1961 level). Tariff revenue is used to finance direct payment.

The consumer would benefit by about 1.25 cents per pound lower price or some \$282 million savings again assuming no change in processing and marketing margins. The Treasury would have a net gain of about \$44 million, somewhat smaller than the 1959 gain of \$71 million.

The foreign supplier, as in the tariff and direct payment illustrations, loses the quota premium but contrasted with the earlier illustrations would maintain the 1959 level of imports.

*Illustration of a tariff, direct payments, and excise tax combinations*

	1959	Projected 1970
<b>Producer returns:</b>		
Raw sugar "world free market" delivered to New York (including freight)		
cents per pound.....	3.43	3.50
Tariff.....	1.50	1.50
Quota premium.....	2.32	-----
Raw sugar delivered to New York, duty paid.....	6.25	5.00
Direct payment sugar crop to producer.....	.70	1.50
Gross returns to domestic producer.....	6.95	6.50
<b>Wholesale price (raw basis):</b>		
Raw sugar delivered to New York, duty paid.....	6.25	5.00
Excise tax.....	.50	.50
Raw sugar price plus excise tax.....	6.75	5.50
<b>Government revenue and payments:</b>		
Excise tax.....	93	113
Tariff.....	45	135
Total.....	138	248
Payments to producers.....	67	204
<b>Sources of supplies:</b>		
Domestic marketings.....	4.8	6.8
Import needs.....	4.5	4.5

<sup>1</sup> From Cuba—full duty rate is 0.625 cents.



The next illustration uses a 1-cent tariff, a 1-cent excise tax, a 0.5-cent quota premium, a 2-cent payment to producers, and gives domestic producers 55 percent of market. This illustration assumes domestic production control. It also assumes that a portion (two-thirds of foreign supplies) would be reserved for possible future use by Cuba and would not be allocated to other countries. This would probably necessitate a Government agency purchasing the unallocated portion and selling it back to the market, or collecting a fee as is now done in purchases of sugar from the Dominican Republic.

Per unit returns to domestic producers would be maintained at the 1959 level by the determination of consumption requirements and the establishment of quotas. To maintain domestic production at 55 percent of the market, stringent production control would be necessary.

The revenues to the Treasury from the excise tax and tariff could exceed payments by slightly more than the 1959 net gain of \$71 million.

The foreign supplier continues to share market growth and thus would gain volume. He would also get a 50-cent quota premium on the sugar sold under quota as compared with none in the first three illustrations and 2.32-cent premium in 1959.

The purchase of a portion of the foreign supplies in the "world free market" is one of the ways of providing for a possible reentry of Cuba into our market. In the interim about \$30 million annually would accrue to the Treasury from recapture of the quota premium.

*Illustration of combination of tariff, direct payment, excise tax, and quota*

	1959	Projected 1970
Producer prices or returns:		
Raw sugar, "world free market" delivered to New York (including freight).....	3.43	3.50 <sup>1</sup>
Tariff.....	1.50	1.00
Quota premium.....	2.32	2.50
Raw sugar delivered to New York, duty paid.....	6.25	5.00
Direct payment to sugar crop producer.....	.70	2.00
Gross returns to domestic producer.....	6.95	7.00
Wholesale price (raw basis):		
Raw sugar delivered to New York, duty paid.....	6.25	5.00
Excise tax.....	.50	1.00
Raw sugar price plus excise tax.....	6.75	6.00
Government revenue and payments:		
Excise tax..... million dollars.....	93	226
Tariff.....	45	104
Total.....	138	330
Payments to producers.....	67	244
Sources of supply:		
Domestic marketing..... million tons raw value.....	4.8	6.1
Import needs.....	4.5	5.2

<sup>1</sup> From Cuba—full duty rate is 0.625 cents.

<sup>2</sup> For the  $\frac{1}{4}$  allocated to specific countries.

# APPENDIXES

## APPENDIX A

### IMPORTS OF SELECTED FOREIGN SUGAR-PRODUCING COUNTRIES

In 1959, the United States imported about \$500 million of sugar which amounted to about 3½ percent of its total imports of \$15.3 billion. Imports of sugar in 1959 were up slightly over the 1955-58 average of \$460 million.

Cuba supplied the United States with \$350 million or about 70 percent of its total sugar imports in 1959 (table A). The Philippines, with exports of sugar to the United States of \$110 million, was the other major supplier but small amounts were received from a number of other countries.

APPENDIX TABLE A.—*U.S. imports of sugar from selected foreign countries*

[Thousands of dollars]

Country	1956	1957	1958	1959
<b>U.S. quota holders: <sup>1</sup></b>				
Costa Rica.....	87	104	118	414
Cuba.....	317,944	336,365	384,223	352,824
Dominican Republic.....	5,387	8,180	8,563	14,346
Haiti.....	323	656	751	740
Mexico.....	1,331	4,318	7,731	7,937
Nicaragua.....	284	1,027	1,869	1,470
Panama.....	1	444	575	475
Peru.....	6,177	8,807	8,584	9,669
Philippines.....	105,750	101,237	110,246	109,804
Taiwan.....	53	388	413	391
<b>Other America:</b>				
Argentina.....				
Brazil.....				1,292
Colombia.....	179	5	194	23
Ecuador.....			1	
El Salvador.....				
Guatemala.....				1
Paraguay.....				
<b>Commonwealth countries:</b>				
Australia.....				
Fiji.....				
British Guiana.....	1	8	11	8
British Honduras.....				
<b>Federation of West Indies:</b>				
Jamaica.....				
Trinidad.....				
India.....				
Mauritius.....				
Union of South Africa.....				
<b>Western Europe:</b>				
Belgium and Luxembourg.....	39	39	23	22
Denmark.....	4			
France.....	3	1	1	1
Germany, West.....	1			1
Ireland.....				
Italy.....				
Netherlands.....	105	389	463	364
<b>Other:</b>				
Indonesia.....				
Turkey.....				

<sup>1</sup> Excludes United Kingdom, Canada and Hong Kong. British Guiana, Belgium and the Netherlands which also have small quotas are shown in other groupings.

Source: U.S. Department of Commerce, Office of Business Economics.

Imports of goods account for 75 to 90 percent of most foreign countries' total international expenditures. Since imports account for so large a percentage of the foreign countries' international expenditures, these data give a good indication of the U.S. share in these expenditures. Table B provides data for the years 1956-58 for specified foreign countries' total imports, their imports from the United States and the percentage their imports from the United States were of their total imports.

These data can be compared with the foreign country's sugar imports, shown in table A, to determine how much of the foreign exchange expenditures of certain foreign countries was obtained from sales of sugar to the United States. It is obvious from such a comparison that U.S. sugar imports have provided only a small portion of the total foreign exchange available to foreign countries other than Cuba and the Philippines. In the case of Cuba, such imports amounted to about half of the foreign exchange by that country for imports.

Imports of agricultural commodities from the United States are shown in table C. Among the U.S. quota holders, Cuba, Mexico, and the Philippines import the largest quantities of United States agricultural commodities.

APPENDIX TABLE B.—*Selected foreign countries' imports—Total, and from the United States, 1956-58*

[Millions of dollars]

Country	Total imports			Imports from United States			Imports from United States in percent of total imports		
	1956	1957	1958	1956	1957	1958	1956	1957	1958
U.S. quota holders: <sup>1</sup>									
Costa Rica.....	91	103	101	50	57	53	55	55	52
Cuba.....	649	773	752	487	578	507	75	75	67
Dominican Republic.....	108	116	131	71	73	81	66	63	62
Haiti.....	46	40	40	29	24	25	63	60	62
Mexico.....	1,072	1,155	1,128	838	890	869	78	77	77
Nicaragua.....	69	81	78	43	47	43	62	58	55
Peru.....	361	400	335	179	191	158	50	48	47
Philippines.....	506	615	562	300	337	292	59	55	52
Taiwan.....	194	212	226	81	85	84	42	40	37
Panama.....	84	99	93	50	59	51	60	60	55
Other America:									
Argentina.....	1,128	1,310	1,233	230	307	203	20	23	16
Brazil.....	1,234	1,489	1,353	355	548	483	29	37	36
Colombia.....	657	483	394	406	289	232	62	60	59
Ecuador.....	80	85	87	42	46	43	53	54	49
El Salvador.....	105	115	108	55	59	53	52	51	49
Guatemala.....	122	131	134	82	80	80	67	61	60
Paraguay.....	25	27	33	3	7	9	12	26	27
Commonwealth countries:									
Australia.....	1,720	1,688	1,797	219	228	235	13	14	13
British Guiana.....	58	69	68	8	12	11	14	17	16
British Honduras.....	59	69	67	40	44	40	68	64	60
Federation of West Indies:									
Jamaica.....	163	187	181	40	42	38	25	22	21
Trinidad.....	176	208	240	21	29	33	12	14	14
India.....	1,708	2,154	1,814	198	358	339	12	17	19
Mauritius.....	48	55	61	1	1	2	2	2	3
Fiji.....	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Union of South Africa.....	1,386	1,540	1,559	278	301	272	20	19	17
Western Europe:									
Belgium and Luxembourg.....	3,272	3,432	3,129	409	426	310	13	12	10
Denmark.....	1,311	1,359	1,345	131	134	122	10	10	9
France.....	5,558	6,170	5,604	682	831	563	12	13	10
Germany, West.....	6,661	7,549	7,413	952	1,351	1,005	14	18	13
Ireland.....	507	517	555	33	30	39	7	6	7
Italy.....	3,175	3,674	3,169	522	684	514	16	19	16
Netherlands.....	3,713	4,105	3,625	521	540	410	14	13	11
Other:									
Indonesia.....	853	797	513	141	133	82	17	17	16
Turkey.....	407	397	315	86	122	88	21	31	28

<sup>1</sup> Excludes United Kingdom, Canada and Hong Kong. British Guiana, Belgium, and the Netherlands which also have small quotas are shown in other groupings.

<sup>2</sup> Not available.

Source: United Nations, Direction of International Trade, vol. 10, No. 8.



APPENDIX TABLE C.—*Selected foreign countries' imports of agricultural commodities from the United States*

[Millions of dollars]

Country	1956	1957	1958	1959
U.S. quota holders: <sup>1</sup>				
Costa Rica.....	7	5	5	6
Cuba.....	124	147	145	132
Dominican Republic.....	5	6	6	6
Haiti.....	7	8	7	7
Mexico.....	69	104	106	62
Nicaragua.....	3	4	4	3
Panama.....	9	12	10	10
Peru.....	13	20	22	18
Philippines.....	54	68	76	50
Taiwan.....	52	52	52	54
Other America:				
Argentina.....	24	2	1	3
Brazil.....	42	41	40	46
Ecuador.....	7	7	5	5
El Salvador.....	6	6	5	5
Guatemala.....	9	9	10	10
Paraguay.....	3	3	1	3
Colombia.....	29	34	26	24
Commonwealth countries:				
Australia.....	26	45	34	25
British Guiana.....	2	3	3	2
British Honduras.....	1	1	1	1
Federation of West Indies:				
Jamaica.....	7	9	9	9
Trinidad.....	5	7	7	7
India.....	87	253	176	209
Mauritius.....	( <sup>2</sup> )	( <sup>2</sup> )	1	1
Union of South Africa.....	13	12	9	16
Fiji.....	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
Western Europe:				
Belgium and Luxembourg.....	165	145	103	123
Denmark.....	44	40	40	63
France.....	138	85	87	63
Germany, West.....	366	411	286	305
Ireland.....	21	13	17	17
Italy.....	160	214	142	117
Netherlands.....	273	238	205	319
Other:				
Indonesia.....	55	22	12	19
Turkey.....	36	59	55	37

<sup>1</sup> Excludes United Kingdom, Canada and Hong Kong. British Guiana, Belgium and the Netherlands which also have small quotas are shown in other groupings.

<sup>2</sup> Less than 0.1 percent.

<sup>3</sup> Not available.

Source: U.S. Department of Commerce, Office of Business Economics.



## APPENDIX B

### ORGANIZATIONS AND INDIVIDUALS SUBMITTING STATEMENTS FOR CONSIDERATION OF THE SPECIAL STUDY GROUP ON SUGAR

1. Australian Embassy.
2. Brazilian Institute of Sugar and Alcohol.
3. California Beet Growers Association, Ltd.
4. Christman & Co.
5. Columbia Basin Beet Growers Association enclosing resolution passed by National Reclamation Association.
6. Corn Industries Research Foundation, Inc.
7. Domestic Sugar Producer Groups, Combined views of—
  - American Sugar Cane League of the U.S.A.
  - Association of Sugar Producers of Puerto Rico.
  - California Beet Growers Association, Ltd.
  - Farmers & Manufacturers Beet Sugar Association.
  - Florida Sugar Producers.
  - Hawaiian Sugar Planters' Association.
  - National Beet Growers Federation.
  - United States Beet Sugar Association.
  - United States Cane Sugar Refiners' Association.
  - Western Sugar Beet Growers Association.
8. Dominican Sugar Office.
9. Economic Development Commission of North Dakota.
10. Florida Sugar Committee.
11. Embassy of France.
12. Guatemala Sugar Producers Association.
13. Sidney J. Hebert, Jr., Broussard, La.
14. Industrial Sugar Users Group.
15. Embassy of Ireland.
16. Lamb Industries, Inc.
17. Mexican Association of Sugar Producers.
18. National Beet Growers Federation:
  - Big Horn Basin Beet Growers Association, Wyoming.
  - Black Hills Beet Growers Association, South Dakota.
  - Central Nebraska Beet Growers Association, Nebraska.
  - Goshen County Beet Growers Association, Wyoming.
  - Idaho Beet Growers Association, Idaho.
  - Kansas State Beet Growers Association, Kansas.
  - Lower Snake River Beet Growers Association, Idaho.
  - Mountain States Beet Growers Association of Colorado, Colorado.
  - Mountain States Beet Growers Association of Montana, Montana.
  - Montana-Wyoming Beet Growers Association, Montana and Wyoming.
  - Nebraska Beet Growers Association, Nebraska.
  - Nyssa-Nampa Beet Growers Association, Idaho and Oregon.
  - Southern Colorado Beet Growers Association, Colorado.
  - Utah Beet Growers Association, Utah.
  - Washington Beet Growers Association, Washington.
  - Western Colorado Beet Growers Association, Colorado.
  - Western Montana Beet Growers Association, Montana.
19. New York Coffee & Sugar Exchange, Inc.
20. Nicaragua Sugar Estates.
21. Peruvian Sugar Producers' Committee.
22. Philippine Sugar Association.
23. Prospective Sugar Beet Growers in the Irrigated Areas of Northwest Texas.
24. Puerto Rican Department of Agriculture and Commerce.
25. South Bay Growers, Inc.
26. Sugar Cane Growers Cooperative of Florida.
27. Boris C. Swerling, Stanford, Calif.



28. Texas Sugar Beet Growers Association.
29. Thomas Machinery Co., Inc.
30. U.S. Cuban Sugar Council.
31. Western Sugar Beet Growers Association:
  - Red River Valley Beet Growers Association.
  - Southern Minnesota Beet Growers Association.
  - Mason City District Beet Growers Association.
  - Columbia Basin Beet Growers Association.
  - Minnesota-Dakota Sugar Beet Development Association.
  - Southern Red River Valley Beet Growers Association.
32. American Farm Bureau Federation.

# TABLES

TABLE 8.—*Entries and marketings of sugar in continental United States from all areas, 1900–60*

[Thousands of short tons, raw value]

Year <sup>1</sup>	Total	Continental United States <sup>2</sup>		Hawaii	Puerto Rico	Virgin Islands	Philippines	Cuba <sup>3</sup>	Other foreign countries
		Beet	Mainland cane						
1900	2, 413	92	312	252	36	(4)	25	353	1, 343
1901	2, 963	198	364	345	69	(4)	2	550	1, 435
1902	2, 574	233	373	360	92	(4)	6	492	1, 018
1903	3, 143	258	278	387	113	(4)	9	1, 198	900
1904	3, 023	259	415	368	130	(4)	31	1, 410	410
1905	3, 118	335	390	416	136	(4)	39	1, 029	773
1906	3, 359	518	273	373	205	(4)	35	1, 391	564
1907	3, 701	496	394	411	204	(4)	13	1, 618	565
1908	3, 331	466	415	539	235	(4)	19	1, 155	512
1909	3, 730	548	332	511	244	(4)	42	1, 431	622
1910	3, 789	546	355	555	285	(4)	88	1, 755	205
1911	3, 801	642	361	506	323	(4)	115	1, 674	180
1912	3, 927	742	163	603	367	(4)	218	1, 593	241
1913	4, 382	784	301	543	383	(4)	102	2, 156	113
1914	4, 431	773	247	557	321	(4)	58	2, 463	12
1915	4, 718	935	139	640	294	(4)	163	2, 392	155
1916	5, 000	878	311	569	425	(4)	109	2, 575	133
1917	4, 808	819	246	581	489	6	134	2, 335	198
1918	4, 430	814	285	540	336	4	87	2, 280	84
1919	5, 352	777	122	579	364	10	88	3, 343	69
1920	6, 337	1, 165	176	550	413	13	146	2, 881	993
1921	5, 412	1, 091	327	541	469	6	165	2, 590	223
1922	6, 807	722	296	568	360	6	275	4, 527	53
1923	6, 831	943	172	519	342	2	238	3, 426	189
1924	6, 463	1, 166	90	677	393	2	339	3, 692	104
1925	6, 934	977	142	755	600	11	493	3, 923	33
1926	7, 024	960	48	747	559	6	380	4, 280	44
1927	6, 809	1, 170	72	777	574	6	531	3, 650	29
1928	6, 691	1, 135	136	878	674	11	575	3, 249	33
1929	7, 587	1, 089	218	882	507	3	711	4, 149	28
1930	6, 683	1, 293	215	868	809	6	794	2, 645	53
1931	6, 727	1, 343	206	998	796	2	872	2, 482	28
1932	6, 303	1, 319	160	1, 048	940	5	1, 028	1, 791	12
1933	6, 331	1, 366	315	990	793	5	1, 249	1, 573	40
1934	6, 574	1, 562	268	948	807	5	1, 088	1, 866	30
1935	6, 277	1, 478	319	927	793	2	917	1, 830	11
1936	6, 833	1, 364	409	1, 033	907	4	985	2, 102	29
1937	6, 860	1, 245	491	985	896	8	991	2, 155	89
1938	6, 619	1, 448	449	906	815	4	981	1, 941	75
1939	7, 466	1, 809	587	966	1, 126	6	980	1, 930	62
1940	6, 443	1, 550	406	941	798	0	981	1, 750	17
1941	8, 009	1, 952	411	903	993	5	855	2, 700	190
1942	5, 555	1, 703	407	751	836	0	23	1, 796	39
1943	6, 466	1, 524	460	866	642	3	0	2, 857	114
1944	6, 942	1, 155	515	802	743	3	0	3, 618	106
1945	5, 997	1, 043	417	740	903	4	0	2, 803	87
1946	5, 657	1, 379	445	633	867	5	0	2, 282	46
1947	7, 759	1, 574	383	842	969	3	0	3, 943	45
1948	7, 084	1, 656	456	714	1, 013	4	252	2, 927	62
1949	7, 588	1, 487	557	769	1, 091	4	525	3, 103	52
1950	8, 279	1, 749	522	1, 145	1, 053	11	474	3, 264	61
1951	7, 758	1, 730	457	941	959	6	706	2, 946	13
1952	7, 991	1, 560	579	972	983	6	860	2, 980	51
1953	8, 282	1, 749	513	1, 087	1, 118	12	932	2, 760	111
1954	8, 240	1, 802	501	1, 040	1, 082	10	974	2, 718	113
1955	8, 966	1, 797	500	1, 052	1, 080	10	977	2, 862	118
1956	8, 992	1, 955	601	1, 091	1, 135	13	982	3, 089	126
1957	8, 916	2, 066	636	1, 037	912	15	906	3, 127	217
1958	9, 076	2, 240	680	630	823	6	980	3, 438	279
1959	9, 240	2, 241	578	977	958	12	980	3, 215	279
1960 (estimated)	9, 512	2, 140	625	840	894	7	1, 156	2, 394	1, 456

<sup>1</sup> Data on fiscal year basis, 1900–1918; calendar year basis, 1919–60.

<sup>2</sup> Crop year production, 1900–1930.

<sup>3</sup> Excludes sugar imported for foreign claimants as follows: 1942, 144,000 tons; 1943, 446,000 tons; 1944, 262,000 tons; 1945, 337,000 tons; 1946, 368,000 tons; and 1947, 230,000 tons.

<sup>4</sup> Not available.

Source: U.S. Department of Agriculture, Commodity Stabilization Service.

TABLE 9.—*Production of sugar in principal areas supplying United States, 1930-60*

[1,000 short tons, raw value]

Crop year <sup>1</sup>	Continental United States				Hawaii	Puerto Rico	Virgin Islands	Total domestic	Philippines (centrifugal)	Cuba	Total
	Beet	Louisiana	Florida	Total mainland cane							
1930.....	1,293	188	27	215	939	872	6	3,325	867	5,305	9,497
1931.....	1,237	160	24	184	1,018	788	2	3,229	871	5,345	7,645
1932.....	1,452	228	37	265	1,057	992	4	3,770	1,100	2,958	7,828
1933.....	1,757	209	41	250	1,191	834	4	4,036	1,285	2,265	7,586
1934.....	1,241	234	28	262	959	1,114	4	3,580	1,598	2,562	7,740
1935.....	1,268	339	43	382	987	781	2	3,420	700	2,883	7,003
1936.....	1,395	386	52	438	1,042	926	4	3,805	979	2,904	7,688
1937.....	1,375	401	58	459	944	1,003	7	3,788	1,118	3,379	8,285
1938.....	1,802	491	93	584	941	1,085	4	4,416	1,055	3,380	8,851
1939.....	1,760	436	70	506	994	858	5	4,123	1,089	3,094	8,306
1940.....	1,894	234	98	332	977	1,026	3	4,232	1,049	3,157	8,438
1941.....	1,584	322	94	416	947	940	2	3,889	1,035	2,734	7,658
1942.....	1,725	397	61	458	870	1,156	1	4,210	550	3,799	8,559
1943.....	998	432	65	497	886	1,046	4	3,431	-----	3,229	6,660
1944.....	1,056	369	69	438	875	729	3	3,101	-----	4,741	7,842
1945.....	1,280	370	100	470	821	971	4	3,546	-----	3,924	7,470
1946.....	1,569	331	94	425	680	816	5	3,595	13	4,476	8,084
1947.....	1,867	297	80	377	872	1,096	3	4,215	78	6,448	10,741
1948.....	1,312	397	80	477	835	1,116	5	3,745	398	6,675	10,818
1949.....	1,608	416	105	521	956	1,288	5	4,378	730	5,763	10,871
1950.....	2,015	456	109	565	961	1,299	11	4,851	685	6,126	11,662
1951.....	1,541	297	122	419	996	1,238	8	4,202	935	6,349	11,486
1952.....	1,519	451	154	605	1,020	1,372	12	4,528	1,077	7,964	13,569
1953.....	1,873	479	151	630	1,099	1,182	14	4,798	1,134	5,687	11,619
1954.....	1,998	478	132	610	1,077	1,204	10	4,899	1,434	5,391	11,724
1955.....	1,730	455	119	574	1,165	1,165	10	4,619	1,372	4,993	10,984
1956.....	1,971	429	128	557	1,100	1,152	13	4,793	1,218	5,229	11,240
1957.....	2,213	396	135	531	1,085	990	15	4,884	1,142	6,252	12,228
1958.....	2,214	443	135	578	765	934	6	4,497	1,346	6,372	12,215
1959.....	2,304	440	175	615	975	1,087	13	4,994	1,533	6,574	13,101
1960 (estimated).....	2,400	480	190	670	936	1,019	7	5,032	1,546	6,460	13,038

<sup>1</sup> Most of the crop-year production totals are produced during the calendar years shown, with the exception of Florida, where the harvesting season begins December of year shown and ends April of the following year.

Source: U.S. Department of Agriculture, Commodity Stabilization Service.

TABLE 10.—*Sugar, centrifugal, raw value: World production by continents, averages 1935-39 to 1950-54 and 1957-58 through 1960-61 seasons*

[Thousand short tons]

Continent	Average, 1935-39	Average, 1950-54	1957-58	1958-59	1959-60	1960-61
North America.....	8,744	13,656	14,578	15,653	15,726	15,952
South America.....	2,114	4,227	5,614	6,854	6,653	6,811
West Europe.....	4,250	6,676	7,519	8,808	7,731	9,317
East Europe.....	3,029	3,375	3,955	4,157	4,107	4,790
U.S.S.R.....	2,761	3,010	5,700	6,700	6,200	7,500
Africa.....	1,295	1,956	2,710	2,819	2,865	2,516
Asia.....	5,149	4,953	7,388	7,612	8,551	9,136
Oceania.....	1,013	1,268	1,609	1,762	1,706	1,700
World.....	28,355	39,121	49,073	54,365	53,539	57,722

Source: Sugar and Tropical Products Branch, FAS, USDA, Dec. 15, 1960.



TABLE 11.—*Sugar, centrifugal, raw value: World trade, by continents, averages 1935-39 to 1950-54, annual 1957, 1958, and 1959*

[Thousand short tons]

Continent	Average, 1935-39		Average, 1950-54		1957		1958		1959	
	Ex-ports	Im-ports	Ex-ports	Im-ports	Ex-ports	Im-ports	Ex-ports	Im-ports	Ex-ports	Im-ports
North America.....	4,014	3,513	7,130	4,410	8,009	4,890	8,016	5,532	7,442	5,359
South America.....	605	259	734	419	41,556	400	1,682	463	1,574	429
West Europe.....	887	4,428	1,709	4,870	2,009	5,881	1,489	5,245	1,390	5,012
East Europe.....	931	1	783	68	481	176	904	223	1,119	102
U.S.S.R.....	145	1	144	41	233	747	245	440	236	390
Africa.....	881	543	886	1,016	1,285	1,408	1,332	1,445	1,217	1,445
Asia.....	3,392	2,337	1,624	2,207	2,327	2,941	2,332	3,421	2,063	3,135
Oceania.....	620	96	655	115	1,078	110	975	147	922	106
World.....	11,475	11,177	13,665	13,146	16,978	16,553	16,975	16,916	15,963	15,978
U.S. offshore trade.....	1,879	1,879	2,088	2,088	1,952	1,952	1,463	1,463	1,953	1,953

Source: Sugar and Tropical Products Branch, FAS, USDA, Dec. 15, 1960.

TABLE 12.—*Centrifugal sugar: World trade in 1959, by major geographic areas*

[Thousand short tons, raw value]

Importers	Exporters								
	North America	Caribbean	South America	Europe		U.S.S.R.	Africa	Asia	Oceania
				East	West				
North America.....	167	3,678	212	0	5	0	103	1,009	228
Caribbean.....	1	1	0	0	8	0	0	0	0
South America.....	10	82	358	0	3	0	0	0	0
Europe:									
East.....	0	0	0	93	0	2	0	0	0
West.....	40	2,135	519	585	369	120	956	11	408
U.S.S.R.....	0	302	0	234	0	0	0	0	0
Africa.....	0	240	82	56	654	10	135	66	0
Asia.....	18	762	403	145	331	101	21	974	159
Oceania.....	0	0	0	0	0	0	0	0	127
Unknown destinations.....	3	3	0	6	20	3	2	3	0
Grand total.....	239	7,203	1,574	1,119	1,390	236	1,217	2,063	922

Source: Sugar and Tropical Products Branch, FAS, USDA, Dec. 15, 1960.

TABLE 13.—*Centrifugal sugar: Trade in 1959, U.S. quota-holders in relation to world*

[Thousand short tons, raw value]

Importers	Exporters				
	U.S. quota holders				All other
	Cuba	Philip-pines	All other quota holders	Total U.S. quota holders	
United States.....	3,231	1,004	1,386	4,621	212
Commonwealth.....	521	3	529	1,053	3,614
Common Market.....	519	4	104	627	1,204
Japan.....	385	34	541	960	267
U.S.S.R.....	302	0	0	302	234
All other.....	500	8	676	1,184	1,885
Grand total.....	5,458	1,053	2,236	8,747	7,216

<sup>1</sup> Includes the following: From Commonwealth countries, 2 (United Kingdom 1, Canada 1), and the Common Market (Netherlands), 4.<sup>2</sup> From Brazil, for reexport.

Source: Sugar and Tropical Products Branch, FAS, USDA, Dec. 15, 1960.

TABLE 14.—*Centrifugal sugar: Trade in 1959, principal Commonwealth countries in relation to world*

[Thousand short tons, raw value]

Importers	Exporters						
	Commonwealth					All other	Grand total
	Australia and Fiji	British West Indies and British Guiana	Mauritius and Union of South Africa	Other Commonwealth	Total, Commonwealth		
United Kingdom.....	408	758	623	14	1,803	961	2,764
Canada.....	228	309	103	0	640	116	756
Other Commonwealth.....	167	0	97	440	704	443	1,147
Total, Commonwealth.....	803	1,067	823	454	3,147	1,520	4,667
All non-Commonwealth except United States.....	119	0	8	306	433	6,230	6,663
United States.....	0	0	0	2	2	4,631	4,633
Grand total.....	922	1,067	831	762	3,582	12,381	15,963

Source: Sugar and Tropical Products Branch, FAS, USDA, Dec. 15, 1960.

TABLE 15.—*Centrifugal sugar: Trade in 1959, Common Market in relation to world*

[Thousand short tons, raw value]

Importers	Exporters									
	Common Market							All other	Grand total	
	Metropolitan Six						Oversea territories and dependencies			Total, Common Market
	Belgium-Luxembourg	Netherlands	West Germany	Italy	France	Total, Metropolitan				
Common Market:										
Belgium-Luxembourg.....	0	0	4	0	0	4	0	4	101	
Netherlands.....	13	0	5	0	8	26	0	26	171	
West Germany.....	3	10	0	0	11	24	0	24	269	
Italy.....	4	0	0	0	12	16	0	16	23	
France.....	12	0	0	0	0	12	339	351	425	
Overseas territories.....	3	5	0	0	304	312	25	337	84	
Total, Common Market.....	35	15	9	0	335	394	364	758	1,073	
All other.....	89	22	35	19	146	311	71	382	13,750	
Grand total.....	124	37	44	19	481	705	435	1,140	14,823	

Source: Sugar and Tropical Products Branch, FAS, USDA, Dec. 15, 1960.

TABLE 16.—*Basic and adjusted sugar quotas, 1955-60*

[Short tons, raw value]

Area	Basic quotas, final					
	1955	1956	1957	1958	1959	1960
Domestic:						
Domestic beet.....	1,800,000	1,953,952	1,948,357	1,998,717	2,043,480	2,267,301
Mainland cane.....	500,000	601,250	599,528	615,024	628,799	697,670
Hawaii.....	1,052,000	1,090,496	1,087,373	1,115,479	1,140,462	1,265,375
Puerto Rico.....	1,080,000	1,140,253	1,136,987	1,166,375	1,192,498	1,328,111
Virgin Islands.....	12,000	15,549	15,505	15,905	16,261	18,043
Total, domestic areas....	4,444,000	4,801,500	4,787,750	4,911,500	5,021,500	5,571,500
Foreign:						
Philippines.....	977,000	980,000	980,000	980,000	980,000	980,000
Cuba.....	2,859,840	3,089,760	2,993,897	3,060,475	3,119,655	<sup>1</sup> 2,419,655
Other foreign.....	119,160	128,740	213,353	248,025	278,845	432,945
Total, foreign areas.....	3,956,000	4,198,500	4,187,250	4,288,500	4,378,500	3,832,600
Total, quotas.....	8,400,000	9,000,000	8,975,000	9,200,000	9,400,000	9,404,100
Subject to sec. 408(b) of act....	0	0	0	0	0	995,900
Total requirements.....	8,400,000	9,000,000	8,975,000	9,200,000	9,400,000	10,400,000

Area	Adjusted quotas, final					
	1955	1956	1957	1958	1959	1960
Domestic:						
Domestic beet.....	1,800,000	1,955,401	2,070,694	2,292,488	2,267,665	2,514,945
Mainland cane.....	500,000	601,696	637,172	720,805	697,783	773,873
Hawaii.....	1,052,000	1,091,305	1,060,000	700,000	977,970	940,444
Puerto Rico.....	1,080,000	1,141,098	920,000	815,000	969,875	893,620
Virgin Islands.....	12,000	12,000	14,753	6,100	12,405	8,618
Total, domestic areas....	4,444,000	4,801,500	4,702,619	4,534,393	4,925,698	5,131,500
Foreign:						
Philippines.....	977,000	980,000	930,000	980,000	980,000	<sup>2</sup> 980,000
Cuba.....	2,859,840	3,089,760	3,127,028	3,437,582	3,215,457	<sup>1</sup> 2,419,655
Other foreign.....	119,160	128,740	215,353	<sup>3</sup> 279,304	278,845	<sup>2</sup> 432,945
Total, foreign areas.....	3,956,000	4,198,500	4,272,381	<sup>3</sup> 4,696,886	4,474,302	3,832,600
Total quotas.....	8,400,000	9,000,000	8,975,000	<sup>3</sup> 9,231,279	9,400,000	8,964,100
Subject to sec. 408(b) of act....	0	0	0	0	0	<sup>2</sup> 1,435,900
Total requirements.....	8,400,000	9,000,000	8,975,000	9,200,000	9,400,000	10,400,000

<sup>1</sup> Includes 39,752 tons for balance of 1960 after July 6 as established by Presidential Proclamation No. 3355.<sup>2</sup> Additional permitted entries, as nonquota purchase sugar, were for the Philippines, 176,426 tons, other foreign areas, 1,023,574 tons, and totaled 1,200,000 tons.<sup>3</sup> This is 31,279 tons larger than "basic," above, because Peru acceded to the International Sugar Agreement in November 1958. This entitled Peru to enter its full basic proration for the year even though the difference between her basic proration and the nonmember limit pursuant to the agreement had been prorated to other full-duty countries before her accession occurred.

Source: U.S. Department of Agriculture, Commodity Stabilization Service.



TABLE 17.—*Final basic sugar quotas for foreign countries, 1955-60*

[In short tons, raw value]

Area	1955	1956	1957	1958	1959	1960
Philippines.....	977,000	980,000	980,000	980,000	980,000	980,000
Cuba.....	2,859,840	3,089,760	2,993,897	3,060,475	3,119,655	2,419,655
Peru.....	55,658	60,131	77,124	86,867	95,527	138,827
Dominican Republic.....	29,591	31,970	60,420	71,557	81,457	130,957
Mexico.....	12,269	13,256	43,134	54,609	64,809	115,809
Nicaragua.....	8,387	9,061	11,588	12,879	14,027	19,766
Haiti.....	2,863	3,094	6,127	6,597	7,014	9,105
El Salvador.....	4,434	4,791	(2)	(2)	(2)	(2)
Netherlands.....	(2)	(2)	3,435	3,592	3,731	4,427
China.....	(2)	(2)	3,371	3,505	3,624	4,218
Panama.....	(2)	(2)	3,371	3,505	3,624	4,218
Costa Rica.....	(2)	(2)	3,367	3,498	3,616	4,202
Canada.....	(2)	(2)	631	631	631	631
United Kingdom.....	(2)	(2)	516	516	516	516
Belgium.....	(2)	(2)	182	182	182	182
British Guiana.....	(2)	(2)	84	84	84	84
Hong Kong.....	(2)	(2)	3	3	3	3
Total.....	3,956,000	4,198,500	4,187,250	4,288,500	4,378,500	3,832,600

<sup>1</sup> Includes 39,752 tons for balance of 1960 after July 6 as established by Presidential Proclamation No. 3355.<sup>2</sup> None since 1956.<sup>3</sup> In 1955 and 1956 no basic quota was established for these countries—importations were permitted within the quota established for "Other countries" as follows: 1955, 5,958; and 1956, 6,437.TABLE 18.—*Final adjusted sugar quotas for foreign countries, 1955-59 and total permitted entries of quota and nonquota purchase sugar for 1960*

[In short tons, raw value]

Area	1955	1956	1957	1958	1959	1960 <sup>1</sup>
Philippines.....	977,000	980,000	980,000	980,000	980,000	1,156,426
Cuba.....	2,859,840	3,089,760	3,127,028	3,437,582	3,215,457	2,419,655
Peru.....	55,658	59,305	79,721	86,867	95,527	273,827
Dominican Republic.....	32,525	42,329	62,454	86,831	81,457	452,814
Mexico.....	13,485	12,042	44,586	66,266	64,809	400,437
Nicaragua.....	8,387	4,530	10,275	15,628	14,027	41,766
Haiti.....	3,147	4,097	6,333	8,005	7,014	35,672
Netherlands.....	(2)	(2)	3,551	4,359	3,731	10,556
China.....	(2)	(2)	3,485	4,253	3,624	10,476
Panama.....	(2)	(2)	3,485	4,253	3,624	10,476
Costa Rica.....	(2)	(2)	0	1,123	3,616	10,469
Canada.....	(2)	(2)	652	766	631	2,288
United Kingdom.....	(2)	(2)	533	626	516	1,871
Belgium.....	(2)	(2)	188	221	182	660
Hong Kong.....	(2)	(2)	3	4	3	11
British Guiana.....	(2)	(2)	87	102	84	84
British West Indies and British Guiana.....	0	0	0	0	0	92,765
El Salvador.....	0	0	0	0	0	6,000
Guatemala.....	0	0	0	0	0	6,000
Brazil.....	0	0	0	0	0	100,347
Total.....	3,956,000	4,198,500	4,272,381	3,696,886	4,474,302	5,032,600

<sup>1</sup> Represents final basic quotas and nonquota sugar authorized for purchase.<sup>2</sup> In November 1958 Peru acceded to the ISA; thus, they were allowed to enter their entire basic quota even though 31,279 tons had been prorated to other full-duty countries.<sup>3</sup> In 1955 and 1956 no basic quota was established for these countries—importations were permitted within the quota established for "Other countries" as follows: 1955, 5,958; and 1956, 6,437.

Source: U.S. Department of Agriculture, Commodity Stabilization Service.

TABLE 19.—*Prices of sugar, of all foods, and of all items*

Period	Prices (cents per pound)			Price index (1947-49 equals 100)				
	Raw sugar duty paid New York	Refined sugar		Refined sugar		All foods		All items retail U.S. aver- age
		Whole- sale New York <sup>1</sup>	Retail U.S. aver- age	Whole- sale New York <sup>1</sup>	Retail U.S. aver- age	Whole- sale U.S. aver- age	Retail U.S. aver- age	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Calendar year:								
1947.....	6.22	8.29	9.73	104	102	98	96	96
1948.....	5.56	7.76	9.37	97	98	106	104	103
1949.....	5.81	7.97	9.53	100	100	96	100	102
1950.....	5.93	8.00	<sup>2</sup> 9.75	100	102	98	101	103
1951.....	6.06	8.38	10.12	105	106	110	113	111
1952.....	6.26	8.62	10.31	108	108	109	115	114
1953.....	6.29	8.72	10.56	109	111	104	113	114
1954.....	6.09	8.72	10.52	109	110	104	113	115
1955.....	5.95	8.59	10.42	107	109	101	111	114
1956.....	6.09	8.77	10.57	110	111	101	112	116
1957.....	6.24	9.15	11.03	114	115	104	115	120
1958.....	6.27	9.27	11.26	116	117	110	120	123
1959.....	6.24	9.33	11.43	117	119	104	118	125
MONTH								
1958:								
January.....	6.15	9.15	11.12	114	116	109	118	122
February.....	6.15	9.15	11.12	114	116	110	119	122
March.....	6.03	9.15	11.10	114	116	112	121	123
April.....	6.21	9.15	11.14	114	116	111	122	124
May.....	6.29	9.24	11.16	115	116	112	122	124
June.....	6.27	9.35	11.30	117	118	111	122	124
July.....	6.28	9.35	11.34	117	118	110	122	124
August.....	6.28	9.35	11.38	117	118	108	121	124
September.....	6.37	9.35	11.38	117	118	109	120	124
October.....	6.47	9.35	11.38	117	118	108	120	124
November.....	6.35	9.35	11.38	117	118	107	119	124
December.....	6.44	9.35	11.38	117	118	106	119	124
1959:								
January.....	6.15	9.35	11.38	117	118	106	119	124
February.....	5.99	9.28	11.34	116	118	105	118	124
March.....	5.84	9.16	11.38	114	118	104	118	124
April.....	5.92	9.05	11.34	113	118	105	118	124
May.....	6.30	9.19	11.32	115	118	105	118	124
June.....	6.31	9.35	11.38	117	118	105	119	124
July.....	6.29	9.35	11.42	117	119	104	119	125
August.....	6.37	9.35	11.46	117	119	103	118	125
September.....	6.51	9.35	11.50	117	120	106	119	125
October.....	6.55	9.55	11.54	119	120	104	118	126
November.....	6.44	9.55	11.54	119	120	103	118	126
December.....	6.17	9.48	11.58	118	121	103	118	126
1960:								
January.....	5.89	9.35	11.56	117	120	103	118	125
February.....	6.00	9.35	11.46	117	120	103	117	126
March.....	6.11	9.23	11.50	115	120	105	118	126
April.....	6.17	9.20	11.48	115	120	106	120	126
May.....	6.09	9.20	11.46	115	120	106	120	126
June.....	6.25	9.20	11.44	115	119	105	120	126
July.....	6.48	9.47	11.48	118	120	107	121	127
August.....	6.47	9.70	11.72	121	122	105	120	127
September.....	6.59	9.70	11.84	121	123	107	120	127
October.....	6.52	9.70	11.88	121	124	109	121	127
November.....	6.53	9.70	11.88	121	124	109	121	127
December.....	6.46	9.40						

<sup>1</sup> Subject to 2 percent discount.

<sup>2</sup> Beginning January 1950, the Bureau of Labor Statistics reports price on 5-pound package; price shown is pound equivalent. Source: Column (1) New York Coffee and Sugar Exchange No. 6 contract plus 0.50 cent duty. Column (2) Lamborn Sugar Market Reports. Column (3) Bureau of Labor Statistics. Column (4) quoted wholesale price reported by Lamborn Sugar Market Reports converted to an index by Sugar Division. Column (5), (7), and (8) Bureau of Labor Statistics Monthly Consumers' Price Index (all items and commodity groups). Column (6) Bureau of Labor Statistics Average Price Index.

Source: U.S. Department of Agriculture, Commodity Stabilization Service.

TABLE 20.—*Sugar beets and sugarcane—season average price per ton received by farmers and calendar year parity prices*<sup>1</sup>

Year	Sugar beets; United States			Sugarcane		
	Price received	Parity	Price as percent of parity	Louisiana and Florida		
				Price received	Parity	Price as percent of parity
			Percent			Percent
1937	\$7.13	\$7.26	98	\$3.79	\$4.92	77
1938	6.51	6.93	94	3.65	4.70	78
1939	6.69	6.76	99	3.80	4.59	83
1940	6.94	6.82	102	3.76	4.63	81
1941	8.28	7.20	115	4.86	4.89	99
1942	9.25	8.20	113	5.60	5.56	101
1943	11.34	8.80	129	5.74	5.97	96
1944	13.21	9.24	143	6.07	6.27	97
1945	12.70	9.40	135	6.77	6.38	106
1946	13.53	10.50	129	7.77	7.12	109
1947	14.24	12.60	113	8.34	8.58	97
1948	13.01	13.60	96	6.86	9.25	74
1949	13.27	13.30	100	7.38	9.03	82
1950	13.61	14.70	93	9.01	8.86	102
1951	14.10	15.90	89	7.38	9.14	81
1952	14.35	15.60	92	8.08	8.79	92
1953	13.94	15.00	93	8.44	8.24	102
1954	13.11	14.90	88	8.12	8.35	97
1955	13.51	14.60	93	7.62	8.41	91
1956	14.24	14.70	97	9.26	8.52	109
1957	13.48	15.30	88	8.03	8.98	89
1958	14.04	15.90	88	8.67	9.37	93
1959	13.55	16.00	85	8.29	9.52	87

<sup>1</sup> "Season average price" is determined for each area on the basis of prices prevailing during the period when most of the sugar of the crop of beets or cane is being sold. The pricing period begins about the time that harvest commences. Currently for beets the period extends for 12 months; for Louisiana somewhat less than 5 months; and for Florida 10 months or more. For the most part the periods begin in October of the year indicated, the year in which most of the production costs and most of the harvest occurred. These series differ slightly from the ones shown in "Sugar Statistics," vol. II, in which data relate to the year of planting as used in Sugar Act administration. Prices received include actual Sugar Act payments for all years (exclusive of abandonment and deficiency payments) and price support payments 1942 through 1957 for sugar beets, and 1943, 1944, and 1945 for sugarcane.

Source: U.S. Department of Agriculture, Commodity Stabilization Service.

TABLE 21.—*Projections of population in the U.S. domestic sugar marketing area July 1, 1960, 1965, and 1970*

[In millions]

Region	July 1, 1960 <sup>1</sup>	July 1, 1965 <sup>2</sup>			July 1, 1970 <sup>3</sup>		
		I	II-2 <sup>4</sup>	IV	I	II-2	IV
United States <sup>4</sup>	179.9	199.2	195.9	191.7	219.8	214.1	202.8
Northeast	44.9		47.6			50.6	
North central	51.9		56.8			62.2	
South	55.1		60.3			66.3	
West	28.0		31.2			35.0	
Armed Forces abroad	.7	.7	.7	.7	.7	.7	.7
Puerto Rico	2.4	2.4	2.4	2.4	2.5	2.5	2.5
Total	183.0	202.3	199.0	194.8	223.0	217.3	206.0

<sup>1</sup> Estimates made by Farm Population and Rural Life Branch. Based on data for April 1960 from the 1960 Census of Population adjusted to July 1, 1960, level shown in "Current Population Reports," p. 25, No. 222 for population residing in the United States (excluding Armed Forces overseas).

<sup>2</sup> 86th Cong., S. Res. 48. Committee Print No. 5. "Water Resources Activities in the United States," Select Committee on National Water Resources, U.S. Senate, Population Projections and Economic Assumptions, pt. II, "Population Projections." (By the U.S. Bureau of the Census.) (Armed Forces overseas for 1970 on assumption IV adjusted to 7.)

<sup>3</sup> Projections made by Farm Population and Rural Life Branch. Estimated percentage distribution developed by interpolation between percentage distribution for 1960 and 1970. See footnote 2 for explanation of the various series.

<sup>4</sup> Excludes Armed Forces overseas.



TABLE 22.—*Projections of deliveries by regions within continental United States*  
 [Thousand tons]

Region	1955-59 average	1965	1970
New England.....	451	447	444
Middle Atlantic.....	2,053	2,166	2,245
North central.....	2,638	3,112	3,467
South.....	2,398	2,787	3,067
West.....	1,310	1,648	1,889
Total.....	8,850	10,170	11,112

<sup>1</sup> Excludes Hawaii and Puerto Rico.

TABLE 23.—*Projections of deliveries of sugar by type of product or business of buyer within the continental United States* <sup>1</sup>

Product or business of buyer	Percent of U.S. total			Quantity		
	1955-59 average	1965	1970	1955-59 average	1965	1970
				<i>Thousands of tons</i>	<i>Thousands of tons</i>	<i>Thousands of tons</i>
Bakery, cereal, and allied products.....	11.5	14.2	16.0	1,018	1,444	1,778
Confectionery and related products.....	9.0	8.8	8.7	797	895	967
Ice cream and dairy products.....	4.1	5.0	5.5	363	509	611
Beverages.....	12.0	14.0	15.3	1,062	1,424	1,700
Preserved foods, jams, jellies, etc.....	9.1	11.4	12.7	805	1,159	1,411
Multiple and all other food uses.....	3.7	4.2	4.5	327	427	500
Nonfood products.....	.7	.8	.9	62	81	100
Total industrial.....	50.1	58.4	63.6	4,434	5,939	7,067
Wholesale grocers, jobbers, dealers.....	33.8	27.2	23.1	2,992	2,766	2,567
Retail grocers, chainstores, etc.....	14.4	12.8	11.8	1,274	1,302	1,311
All other, including hotels, restaurants, and Government.....	1.7	1.6	1.5	150	163	167
Total nonindustrial.....	49.9	41.6	36.4	4,416	4,231	4,045
Total deliveries.....	100.0	100.0	100.0	8,850	10,170	11,112
Deliveries in consumer packages.....	34.3	29.6	26.9	3,036	3,010	2,989

<sup>1</sup> Excludes Hawaii and Puerto Rico.

TABLE 24.—*Sugar production—Acres, yield, production, and number of farms*

## A. SUGAR BEETS

Year	Harvested acres	Yield per acre harvested	Production	Number of farms
Average:	<i>Thousands</i>	<i>Tons</i>	<i>Thousands of tons</i>	<i>Thousands</i>
1945-49.....	760	13.6	10,350	36.7
1950-54.....	780	15.5	12,106	28.2
1955-59.....	841	17.3	14,660	25.0
1959.....	905	18.8	17,015	25.2
1960 <sup>1</sup> .....	960	17.2	16,472	( <sup>2</sup> )
Change, 1945-49 to 1960.....	<i>Percent</i> +20	<i>Percent</i> +26	<i>Percent</i> +59	<i>Percent</i> -31

## B. SUGARCANE (MAINLAND)

Year	Acres harvested for sugar	Yield per acre	Production of cane	Number of farms
Average:	<i>Thousands</i>	<i>Tons</i>	<i>Thousands of tons</i>	<i>Thousands</i>
1945-49.....	299	19.7	5,981	6.0
1950-54.....	307	21.8	6,692	4.5
1955-59.....	262	24.6	6,438	3.3
1959.....	296	23.1	6,844	2.7
1960 <sup>1</sup> .....	307	22.4	6,882	( <sup>2</sup> )
Change, 1945-49 to 1960.....	<i>Percent</i> +3	<i>Percent</i> +14	<i>Percent</i> +15	<i>Percent</i> -55

## C. SUGARCANE, PUERTO RICO

Average:	<i>Thousands</i>	<i>Tons</i>	<i>Thousands of tons</i>	<i>Thousands</i>
1945-49.....	321	28.1	9,072	13.4
1950-54.....	373	29.1	10,941	18.0
1955-59.....	350	27.6	9,627	17.6
1959.....	345	30.0	10,182	16.0
1960 <sup>1</sup> .....	320	31.2	10,001	( <sup>2</sup> )
Change, 1945-49 to 1960.....	<i>Percent</i> 0	<i>Percent</i> +11	<i>Percent</i> +10	<i>Percent</i> -11

## D. SUGARCANE, HAWAII

Year	Acres harvested for sugar	Yield per acre	Production of cane	Number of farms harvesting cane
Average:	<i>Thousands</i>	<i>Tons</i>	<i>Thousands of tons</i>	
1945-49.....	101.9	72.4	7,381	( <sup>3</sup> )
1950-54.....	108.5	80.7	8,756	664
1955-59.....	102.9	89.8	9,239	793
1959.....	110.4	85.3	9,416	787
1960 <sup>1</sup> .....	100.0	90.0	9,000	( <sup>2</sup> )
Change, 1945-49 to 1960.....	<i>Percent</i> -2	<i>Percent</i> +24	<i>Percent</i> +22	<i>Percent</i> -19

<sup>1</sup> Preliminary.<sup>2</sup> Not available.<sup>3</sup> Change from 1945-49 to 1959.<sup>4</sup> Change from 1950-54 average to 1959.<sup>5</sup> Data not available on same basis.

TABLE 25.—*Harvested acreage of sugar beets and sugarcane—1959 and 1970 projections, under 3 price situations*<sup>1</sup>

[In thousands of acres]

Area	1959	Projected acreage by 1970		
		Situation A (prices 25 percent below 1959) <sup>2</sup>	Situation B (1959 prices) <sup>2</sup>	Situation C (prices 25 percent above 1959) <sup>2</sup>
	Mainland beet areas			
Region 1 (Michigan, Wisconsin, Illinois, Indiana, Ohio, and Northeastern States).....	104	15	152	467
Region 2 (eastern North Dakota, Minnesota, Iowa).....	102	142	363	642
Region 3 (South Dakota, Nebraska, northeastern Colorado, southeastern Wyoming).....	206	178	338	422
Region 4 (Colorado, Kansas, Oklahoma, Texas, New Mexico).....	39	24	219	473
Region 5 (Montana, western North Dakota, western Wyoming).....	74	40	112	152
Region 6 (southeastern Idaho, Utah).....	86	56	141	161
Region 7 (Washington, Oregon, western Idaho).....	86	76	135	185
Region 8 (California, Arizona, Nevada).....	208	100	485	1,020
All sugar beet areas.....	905	631	1,945	3,522
	Cane areas			
Mainland (Louisiana and Florida).....	296	209	413	687
Offshore (Hawaii, Puerto Rico, and Virgin Islands).....	459	176	480	549
All sugarcane areas.....	755	385	893	1,236
All sugar producing areas.....	1,660	1,016	2,838	4,758

<sup>1</sup> Projected production is based on specific assumptions. See text, p. 51, for statement of these assumptions.<sup>2</sup> Price of sugar crop to grower including Government payment. Prices of other crops and costs of production inputs assumed at the 1959 level.











Table 26.- CENTRIFUGAL SUGAR: 1959 WORLD TRADE, SUPPLY AND DISTRIBUTION  
(1,000 short tons, raw value)

[illegible]

1/ Other countries which shared in U. S. quotas are the following Commonwealth countries: U.K., Canada, Hong Kong, and British Guiana. Common Market countries are: Belgium and Netherlands.

2/ Includes Antigua, Barbados, Jamaica, St. Kitts, St. Lucia, St. Vincent and Trinidad.



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